2011

The attitudes of older patients to general practice registrars

Andrew D. Bonney
University of Wollongong, abonney@uow.edu.au

Centre for Health Initiatives

School of Nursing, Midwifery and Indigenous Health

Faculty of Health and Behavioural Sciences

The attitudes of older patients to general practice registrars

Dr Andrew Drummond Bonney

MBBS (Hons) MFM (Clin) DRANZCOG FRACGP

This thesis is presented in fulfilment of the requirement for the

Award of the Degree of Doctor of Philosophy

of the

University of Wollongong

2011

Thesis Certification

CERTIFICATION

I, Andrew Drummond Bonney, declare that this thesis, submitted in fulfilment of the requirements for the award of Doctor of Philosophy, in the Faculty of Health and Behavioural Sciences, University of Wollongong, is wholly my own work unless otherwise referenced or acknowledged. The document has not been submitted for qualifications at any other academic institution.

Andrew Drummond Bonney

6 April 2011

Declaration of co-authors' contributions to the work

Chapter 2: Patients' attitudes to general practice registrars: a review of the literature

Bonney A, Phillipson L, Reis S, Jones SC, Iverson D. Patients' attitudes to general practice registrars: a review of the literature. *Educ Prim Care* 2009;20(5):371-8

- Ms Phillipson contributed to the development of the search strategy and critical review of the manuscript; Dr Reis contributed to the development of the search strategy, performance of the electronic search and critical review of the manuscript; and Prof Jones and Prof Iverson assisted with advice on the overall structure of the study and critical review of the manuscript.

Chapter 3: Older patients' attitudes to general practice registrars: a qualitative study

Bonney A, Phillipson L, Jones SC, Iverson D. Older patients' attitudes to general practice registrars - A qualitative study. *Aust Fam Physician* 2009;38(11):927-31

- Ms Phillipson contributed to the development of the interview guide, development of the initial coding schedule and critical review of the manuscript; and Prof Jones and Prof Iverson assisted with advice on the overall structure of the study and critical review of the manuscript.

Chapter 4: General practice registrars: attitudes of older patients

Bonney A, Jones SC, Phillipson L, Iverson D. General practice registrars - attitudes of older patients. *Aust Fam Physician* 2010;39(6):419-24.

- Ms Phillipson contributed to the development of the survey instrument; and Prof Jones and Prof Iverson assisted with advice on the overall structure of the study and critical review of the manuscript.

Chapter 5: Measuring older patients' attitudes to general practice registrars: exploratory factor analysis of a survey instrument

Bonney A, Magee C, Caputi P. Measuring older patients' attitudes to general practice registrars: Exploratory factor analysis of a survey instrument. *Focus on Health Professional Education: A Multi-disciplinary Journal* 2011;12(3):74-85

- Dr Magee contributed to the presentation of the methods section of the paper and Dr Magee and A/Prof Caputi assisted with advice on the statistical analyses and critical review of the manuscript.

Chapter 6: The older patient, the doctor and the trainee: patients' attitudes and implications for models of care

Bonney AD, Jones SC, Iverson D. The older patient, the doctor and the trainee: patients' attitudes and implications for models of care. Wollongong: University of Wollongong; 2011.

- Prof Jones and Prof Iverson assisted with advice on the overall structure of the study and critical review of the manuscript.

Chapter 7: The Older Patients' Attitudes to General Practice Trainees (OPAGPT) Scale: Trust, continuity and implications

Bonney AD, Jones SC, Iverson D. The Older Patients' Attitudes to General Practice Trainees (OPAGPT) Scale: Trust, continuity and implications. Wollongong: University of Wollongong; 2011

- Prof Jones and Prof Iverson assisted with advice on the overall structure of the study and critical review of the manuscript.

Chapter 8: Preparing general practice training for an ageing population

Bonney AD, Jones SC, Iverson D. Preparing general practice training for an ageing population. Wollongong: University of Wollongong; 2011.

- Prof Jones and Prof Iverson assisted with review of the manuscript.

I have read and agreed to the above descriptions of co-authors' contributions to this work:

..... Date: .....

Prof Sandra Jones

Primary Supervisor

TABLE OF CONTENTS

LIST OF ABBREVIATIONS

ACRRM: Australian College of Rural and Remote Medicine

AGPT: Australian General Practice Training Program

BEACH: Better Evaluation and Care of Health Study

CI: Confidence interval

FM: Family medicine

GP: General practitioner

GPET: General Practice Education and Training Limited

GPR: General practice registrar

IPC: Interpersonal continuity of care

IPT: Interpersonal trust

MAP: Minimum average partial test

OR: Odds ratio

OPAGPT: Older patients' attitudes to general practice trainees scale

PVC: Patients' value of continuity of care

RACGP: Royal Australian College of General Practitioners

RTP: Regional Training Provider

SD: Standard deviation

SPSS: Statistical Package for Social Sciences

ST: Institution/system trust

ABSTRACT

The attitudes of older patients to general practice registrars

Introduction

The ageing population has created an imperative for GP training practices to ensure that general practice registrars (GPRs) gain adequate experience in the management of older and chronically ill patients as this group of patients will represent a significant proportion of future GPs' caseloads. However, GPRs' training may be hampered by these patients' preference for personal continuity in their general practice care, and reluctance to consult GPRs. There has been a paucity of research to assist practices in addressing these training challenges. Thus, the aims of this research were to: review the international literature regarding the attitudes of patients towards GPRs; determine important aspects of older patients' attitudes to GPRs in Australia; identify factors that influence those attitudes; and provide recommendations that would enhance the engagement of GPRs in the management of older patients in training practices.

Methods

A mixed methods research design was adopted, commencing with a review of relevant studies identified by searching major electronic medical literature databases for the period from 1980 to March 2009. A qualitative study was then undertaken in which 38 patients aged 60 years and over participated in semi-structured telephone interviews with the data analysed using a template approach. A pilot cross-sectional survey of patients aged 60 and over from 10 GP training practices was then performed; the development of the survey instrument being informed by the literature review and the qualitative study. Non-parametric statistical tests were used for analysis. An exploratory factor analysis of the survey instrument was then undertaken. After establishing that the instrument possessed appropriate psychometric properties, it was distributed to 1900

patients aged 60 and over from 38 training practices across five Australian states using a stratified, randomised cluster sampling process. Generalised estimating equation models were used for analysis. A further factor analysis of the survey instrument was performed and the results were compared with those of the pilot study.

Results

The literature review did not identify any research focusing on the attitudes of older patients to GPRs, or any previous Australian studies addressing patients' attitudes to GPRs. However, there was indication that older patients and those with chronic conditions were less positive in their attitudes to GPRs, with concerns regarding loss of interpersonal continuity with their regular GP appearing the likely cause. The results of the subsequent qualitative study demonstrated five major themes of patient attitude: continuity, access, openness, trust and meaningful communication. The central dynamic of the GP-older patient-GPR relationship was noted as a likely key determinant of older patients' responses to GPRs. The response rate for the pilot survey which followed was 47% (n=233). Twenty-four percent of respondents were comfortable with GPR chronic/complex care, increasing to 73.1% with contact with their usual GP during the consultation. Internal reliability was shown to be acceptable for the attitude scale. Three factors were identified on factor analysis: 'interpersonal trust' (IPT); 'system trust' (ST); and 'interpersonal continuity' (IPC). In the multi-state survey the response rate was 47.9% (n=911). Eighty-three percent were happy to see a GPR for a minor problem, and of those who had seen a GPR 74.7% were generally satisfied with the consultations. Of respondents with a chronic/complex condition, 25.5% were comfortable with independent GPR chronic/complex care; increasing to 77.9% if their usual GP was called in to check management during the consultation. Modelling confirmed increased likelihood of comfort with GPR chronic/complex care with

personal involvement of the regular GP. Factor analysis identified the three factors previously noted (IPT, ST and IPC) with the items in each factor similar to those of the pilot study. Poor self-rated health increased the likelihood of high IPT sub-scale scores and chronic illness the likelihood of high IPC scores, whilst high self-rated health scores increased likelihood of high ST scores. High IPC and IPT scores predicted reduced comfort with trainee chronic care, whilst high ST scores predicted increased comfort.

Discussion

Older patients' attitudes to GPRs were associated with their desire for interpersonal continuity of care with their regular GP, and reflected the interpersonal trust they experienced in that relationship. Their attitudes towards GPR care for chronic/complex conditions became significantly more positive with increasing involvement of their regular GP in the consultation. In addition, this desire for interpersonal continuity in chronic problem care appeared to be associated with the degree of vulnerability patients experienced. Therefore, it is recommended that processes of care encouraging 'shared continuity' be adopted in training practices, to enable GPR involvement in the management of the chronic/complex conditions of older patients whilst facilitating ongoing interpersonal continuity of care with their regular GP. Further research is required to determine: whether such processes result in patient satisfaction with GPR chronic condition management; whether improved training outcomes result; the clinical outcomes of such interventions; and the impact on training practices.

ACKNOWLEDGEMENTS

This work could not have been completed without the assistance, support and guidance of many generous people. My particular thanks to my supervisors, Prof Sandra Jones and Prof Don Iverson, who combined seemingly endless patience, humour and interest with sound counsel, honesty and razor sharp critique: the best possible apprenticeship for academic life. Thank you to Ms Lyn Phillipson, who nurtured the first seedlings of the project and through whose encouragement the concept that the work might make the basis of a thesis was brought about, and also to Prof Elizabeth Farmer for her support.

My thanks to CoastCityCountry General Practice Training (CCCGPT), whose generous funding enabled the research to be undertaken, and in particular to the CEO, Ms Sharon Flynn for her belief in the project. My deep appreciation also to the Centre for Health Initiatives at the University of Wollongong, for financial support, as well as three years of administrative and research assistance. I am unable to personally name everyone; however Dr Samantha Reis, Dr Gillian Stillfried, Mr Lance Barrie and Mrs Elisabeth Newton deserve special mention. I am very grateful for the helpful statistical advice I received from Dr Robert Clark, Dr Christopher Magee and A/Prof Peter Caputi in Phase 3 and Dr Christopher Magee and Dr Marijka Batterham in Phase 4 of the project. Thank you to the doctors, staff and patients of the general practices around Australia who agreed to participate in the research.

Most of all I need to thank my wonderful wife and life partner Dr Vicki Bonney, who has steadfastly and good-naturedly supported me throughout, encouraged my vision and kept my feet on the ground; and to my children Lillian, Melanie, Lewis and Joshua who have been unfailingly and unstintingly supportive.

The only permanence is change. Life is flux, communities change, and the resourcefulness to confront ongoing and evolving challenges represents the ultimate bottom line. Creating resources for current and future problem-solving thus constitutes the ultimate definition of community readiness and the bedrock criterion for assessing intervention impact and sustainability.[1]

Chapter One: Background and introduction to the research

This thesis presents the background, rationale, methods, findings and conclusions of a multi-method investigation into older patients' attitudes to general practice registrars (GPRs). The thesis is presented in Style 2, for examination for the degree of Doctor of Philosophy according to the Rules of the University of Wollongong. Thus, the thesis consists of an introductory chapter 'that provides the Thesis Examiners with a coherent picture of the context of the body of the work and how this contributes to the knowledge in the discipline area'; seven chapters presented in the format of journal articles 'which describe research conducted by the candidate during their period of candidature'; and a concluding chapter reflecting upon the research conducted, 'summarising the conclusions and identifying future directions for the research area'.

The research had the following aims:

- To establish what was currently known from the international literature regarding the attitudes of patients towards GPRs;
- To determine important aspects of older patients' attitudes to GPRs in Australia; identify factors that influence those attitudes; and determine which of those attitudes and factors were amenable to change; and

- To provide recommendations based on the above findings that would enhance the engagement of GPRs in the management of older patients in training practices

Definitions

Older: For the purposes of this thesis, meaning aged 60 years and older.

General practice registrar: The term used in Australia to denote a medical graduate who is undertaking vocational training for general practice.

Background

A background of Australian general practice

In beginning an investigation of the attitudes of older Australians to trainee general practitioners, it is worthwhile considering briefly the history and course of general practice in Australia as this provides a backdrop against which relatively recent developments in general practice training can be placed in context. This narrative is also helpful in providing a background to patients' responses. People aged over 60 will have had experiences involving a number of generations of family doctors, and those experiences may have significant influence on present expectations and beliefs[2] in a rapidly changing healthcare landscape.

General practice in Australia, whilst seeded by medical professionals from Great Britain, developed its own individual character dictated by the needs and environment of the nation as it developed.[3-5] Before 1800 in Britain there were arguably three medical professions: university trained physicians; craftsmen surgeons; and tradesmen apothecaries, the latter dispensing medicines prescribed by physicians, but also allowed to provide medical advice. [3, 6] There was insufficient income to be derived from

confining practice to any one of these occupations, thus it is likely the majority of practitioners provided some degree of generalist services, regardless of their training.[6] In the early nineteenth century, amidst a period of social upheaval and medical reform, a new association was founded, aimed at representing the interests of those practitioners who regarded themselves as generalists. Thus the Association of Apothecaries and Surgeon-Apothecaries was formed in 1812 in London, and about this time the term 'general practitioner' was first used to describe this group of doctors. In 1815 the Apothecaries Act was passed by the British Parliament, putting into statute the requirements for the minimal training and licensing of generalist doctors.[3, 4, 6]

In the early Australian colony, medical practitioners were either naval or military surgeons, or transported convicts.[3-5] Their ranks were supplemented in the first half of the nineteenth century by immigrant doctors.[5] Of necessity these doctors worked as generalists, though without the corporate identity of the general practitioners in Britain.[4] With the expansion of the colony, particularly with the gold rush, practices were established over a wide geographical area, including the edges of the colony in the Australian outback. These generalist doctors provided a wide range of services and were highly valued in their often isolated communities.[4, 5]

In the second half of the nineteenth century, medical schools were established in Melbourne, Adelaide and Sydney, teaching basic sciences and clinical skills. Generalist practice provided the primary source of clinical experience and training, with newly graduated doctors working as assistants to experienced mentors.[3] Advances in medical science and the influence of the Flexner reforms in the early twentieth century in the USA saw the development of the major medical specialities and a shift to hospital-based

medical training.[7] However, in contrast to the USA, many Australian specialists were recruited from the ranks of generalists,[5] and until the Second World War some hospital specialists still consulted in general practice.[3] This fluidity between general and specialist practice in Australia abruptly changed in the aftermath of WWII with specialists being recruited from, and trained exclusively in, hospitals[3] and specialist medicine becoming increasingly technologically oriented.[7]

The introduction of the NHS in Britain in 1948 was associated with a significant decline in morale in general practice in that nation. High workloads and low morale were associated with low quality, and the damming Collings Report into general practice precipitated moves to reverse the crisis general practice was experiencing.[3, 8] The College of General Practitioners (later Royal College of General Practitioners) was thus formed in 1952 to establish and maintain appropriate standards for general practice. This struck a chord within Australian general practice, and many Australian general practitioners became foundation members. Within six years there were functioning faculties of the College in all Australian states. With the support of the British College, the Australian College of General Practitioners (later Royal Australian College of General Practitioners) was incorporated on 4 February 1958, with quite rigorous criteria for membership and the goals of providing under- and post-graduate general practice education, promoting research and supporting professional development.[3] Reflecting the strong history of remote generalist medical care in Australia, a separate entity, the Australian College of Rural and Remote Medicine, was incorporated in 1997. Its aims were to promote and provide training for rural and remote practice, 'acknowledging the importance of rural and remote medicine as a broad but discreet form of general practice'.[9]

Contemporary general practice training

Training for general practice has traditionally followed an apprenticeship-like process and there has been a long history in Australia of training as an assistant to an experienced general practitioner before entering independent practice.[3] This model still provides the basic GP training framework.[10] In 1974 formal training for general practice was established with the introduction of the Family Medicine Program, funded by the Commonwealth Government and delivered by the Royal Australian College of General Practitioners (RACGP). Initially, completion of the training program was awarded with the qualification of 'Certificate of Satisfactory Completion of Training in General Practice'; however, in 1987 the College accepted a recommendation that examination for Fellowship of the RACGP be the end-point of training.[11] In 1996, the term 'registrar' was first used to officially describe GP trainees.[12] The RACGP remained responsible for all aspects of GP training until 2002.[13] At that time the Commonwealth Government established a new provider model for the delivery of training, one of the stimuli being GP workforce shortages, particularly in rural and regional areas.[13, 14] Included in these changes was the decentralisation of training to new entities titled Regional Training Providers (RTPs). General Practice Education and Training Limited (GPET) was established to manage the new Australian General Practice Training Program (AGPT) on behalf of the Government.[15] Currently the RACGP and ACRRM each have responsibility for standards for teaching and assessment for admission to their colleges, with the training administered by GPET. Registrars are encouraged to undertake rotations through a number of training practices, and optionally also special skills posts, where they manage patients with increasing autonomy under the general supervision of accredited, experienced GPs. The RACGP Standards state: 'The trainer must therefore be available to advise, counsel and mentor the registrar when necessary,

so that a graduated clinical experience and responsibility in primary care are achieved'.[16] Training practices are typically accredited private facilities whose primary purpose is the care of the communities in which they are situated. Special skills posts may include anaesthetic, surgical, obstetric, Aboriginal health or academic training positions. The length of training varies from between three to four years.[17] Recognition as a vocationally trained GP, and the provision of an unconditional provider number allowing access to Medicare benefits, is contingent on satisfactorily completing training and passing the relevant college's examination.[15]

With ongoing general practice workforce pressures, there has been increasing investment in GP training in recent years. Six hundred and eighty four new General Practice Registrars (GPRs) entered training in 2009, compared with 619 in 2007.[18] Overall, there were more than 2,300 GPRs who entered various stages of training in 2009,[18] out of a total of 19,000 active GPs and GPRs in Australia.[19]

The importance of general practice

General practice is considered the 'heart' of the Australian healthcare system,[20] and is vital due to both the scope of its reach in the community and the positive impact it has on health outcomes.[21] General practice constitutes the 'first port of call' for the vast majority of people in Australia seeking medical care.[19] Medicare statistics indicate that in 2005-2006, 88% of the Australian population visited a vocationally registered GP at least once, with a mean frequency of six visits per person per year.[22]

The RACGP uses for its definition of general practice the following statement:

> *General practice is the provision of primary, continuing, comprehensive, whole-patient medical care to individuals, families and their communities.*[23]

This definition acknowledges the complexity that is embraced by the discipline of general practice in seeking to promote the health of our communities. Whilst utilising the knowledge base of biomedical research, the theoretical approach of general practice recognises that human illness does not exist in isolation from the experience of individuals, the meanings they ascribe to that experience and the interconnectedness of individuals with their families, communities and society.[7] A key feature of general practice is recognition of the importance of the doctor-patient relationship as part of this interconnectedness, influencing the outcomes of the doctor-patient encounter. The practical approach that has developed in response to these theoretical foundations has become known as a 'patient-centred' approach.[7] Researchers, such as American health services expert Barbara Starfield, have demonstrated the power of this incorporation of biomedical knowledge in a community-based, patient-centred medical model. Epidemiological studies have demonstrated at a state and national level that health systems with strong primary health care bases fare better in both health and cost outcomes than those with more specialist-oriented health systems.[21] As general practitioners (GPs) are the main source of primary medical care in Australia,[20] training the GPs of the future has real significance for the health of our nation.

The impetus for the research and development of the research question

The author is a GP and has practised in a small community of 3,500 people on the NSW South Coast since 1992. From 1997 he has been involved in delivering training for GPRs in his practice. In balancing these roles, the author had attempted to maintain a number of guiding principles, two of which were to provide interpersonal continuity of care for the patients and to provide a broad clinical experience for the GPRs on rotation through the practice. However a recurrent phenomenon was observed; that a number of patients, especially older patients, expressed a firm reluctance to consult the GPRs and

would rather defer their consultations until their usual GP was available. It seemed there was a conflict of purposes: developing strong, long-term relationships with patients was, at times, counter-productive to providing training opportunities for GPRs; and attempting to facilitate training opportunities, at times, threatened to undermine patient satisfaction in the practice. Training seemed frequently at odds with patient-centred care. In attempting to find ways of resolving this apparent conflict, and to address patient concerns, the initial research question arose: *What are the attitudes of patients to general practice registrars?*

A preliminary review of the literature was undertaken and identified only a small number of previous studies addressing patients' attitudes to GPRs or their equivalents. No studies from Australia were identified. The initial literature that was available supported the author's observations. Whilst patients had been reported to be generally satisfied with GPR consultations,[24] a large study from Ireland in 1995 suggested that patients aged over 40 years were less positive in their attitudes towards GPRs than younger patients.[25] It was then decided to narrow the research question to: *What are the attitudes of older patients to general practice registrars?* This modification focused the research on the group appearing to have the most difficulty accepting GPRs.

This focus on older patients appeared justified given the findings of a wider review of the literature. Researchers had noted that a succession of registrars through a practice had the potential to disrupt the continuity and personalisation of care provided.[26] Interpersonal continuity of care was found to be especially valued by both GPs and their patients when dealing with chronic,[27, 28] complex or emotional problems.[28] Interpersonal continuity had been reported to be associated with patient trust,[29, 30] patient

satisfaction,[30, 31] and improved patient outcomes.[32, 33] It was not surprising therefore to find that disruption of interpersonal continuity had been proposed as a contributor to patient dissatisfaction with training practices.[34]

Previous studies had indicated that older patients had a higher preference for seeing their 'personal' doctor[27, 35] and were susceptible to adverse clinical events with a lack of interpersonal continuity.[32] This supported the hypothesis that older patients may be particularly concerned about the disruption to interpersonal continuity of care that GPR training might cause. The contention that older patients were less willing to consult GPRs was further strengthened by Australian data indicating that GPRs see significantly fewer older patients, and fewer patients with chronic illnesses, than GPs who had gained their Fellowships within the previous 10 years.[36] This study from Victoria demonstrated that GPRs saw patients aged 65 years and over at a rate of 13.6 per 100 encounters compared with a rate of 19.0 per 100 encounters for young vocationally registered GPs and managed chronic problems at a rate of 27.6 per 100 encounters compared with a rate of 39.3 per 100 encounters for their vocationally registered counterparts.[36] As adult education theory indicates that learning is motivated and facilitated by the need to solve important, real-life problems,[37] older patients' reluctance to consult GPRs has clear consequences in reducing GPR learning opportunities.[36] The loss is significant, as older patients frequently provide a rich learning experience for registrars, both due to their accumulated life experiences and due to the frequent complexity of their management with multi-morbidity and multi-drug use.

Our ageing population adds urgency in identifying solutions to this problem. Current trends indicate a significant increase in the proportion of general practice consultations

for older people, with a 30% increase in consultations with people aged 75 years and over in the period from 1998-99 to 2006-7.[38] GPs of the future will be managing an increasing caseload of older patients,[38] with the concomitant responsibility for chronic and complex care management that older patients bring. Even at present, over 40% of all Australian GP consultations address a chronic problem, with this figure having steadily risen in recent years.[19, 38] Therefore, adequate training for the management of the elderly and chronically ill is assuming increasing importance.[36] Whilst it has been recognised in many countries that there is a need for significant structural reform for general practice to adapt to these and other changes,[39-43] it is also evident that both the models and content of GP training will need to adapt.[44]

The challenge for training practices is the need to care for increasing numbers of older and chronically ill patients, whilst dealing with the potential for significant resistance from older patients to consulting GPRs. Training practices require evidence that can be used to assist them to facilitate the interaction between GPRs and older patients in ways that are acceptable to patients, protect patient outcomes, provide excellent training opportunities, and are not burdensome on practice resources. Thus this research project was designed to examine the attitudes of older patients towards GPRs, with the purpose of proposing evidence-based recommendations to address these concerns.

Structure and methodology of the research

The preliminary review of the literature had indicated that patients' attitudes to GPRs were likely to be complex, and influenced by a variety of factors in a number of different domains. Patients' attitudes had been noted to vary with factors relating to the patient personally, including the patients' age,[25] gender,[25] level of educational attainment,[45] and their presenting medical concern.[25, 26] However, features of the

training practices also appeared to influence patients' attitudes, including practice organisational structures[46, 47] and communication strategies.[47] Characteristics of the GPRs, such as gender[48] and communication skills,[49] also influenced patients' attitudes. In such a potentially complex and context-dependent field of enquiry, a multi-method approach has been recommended.[50] Thus this study was undertaken in four phases, the methodology in each phase appropriate for the type of knowledge sought, building upon the work of previous phases. These phases are outlined below.

Phase 1 (Chapter 2)

- Literature review

  A comprehensive review of the international medical literature was undertaken to identify previous research, gain an understanding of what was known regarding older patients' attitudes to GPRs and identify areas of knowledge gap and potential for further enquiry.[51]

Phase 2 (Chapter 3)

- A qualitative study of interviews with patients from three training practices in the Illawarra-Shoalhaven region

  Proceeding from the findings of the literature review, a qualitative study was undertaken to obtain an understanding of the range of patient cognitions, feelings and motivations concerning consulting GPRs within the context of their usual medical care. This study used semi-structured interviews with patients as well as practice observations.[52]

Phase 3 (Chapters 4 and 5)

- Cross-sectional attitude survey study of patients from 10 training practices from a General Practice Regional Training Provider in south eastern NSW

The results of the literature review and qualitative study were then used to inform the development of a survey instrument for use in cross-sectional quantitative studies in Phases 3 and 4.[53] These final phases were planned to test hypotheses generated from the qualitative research,[53] gain measures of the relative importance of various factors associated with patients' attitudes, test the acceptability of proposed interventions and enable generalisability of the results.[54, 55] Phase 3 served as a pilot study, allowing an assessment of the survey instrument, recruitment, sampling and statistical procedures. An exploratory factor analysis was undertaken to assess the psychometric properties of the survey instrument.

Phase 4 (Chapters 6 and 7)

- Cross-sectional attitude survey study of patients from 38 practices from regional training providers in five Australian states

Following the satisfactory outcomes from Phase 3, the final interstate cross-sectional survey study, Phase 4, was undertaken. Having preliminary data indicating the survey instrument possessed acceptable psychometric properties, this larger study enabled more sophisticated statistical procedures and more confident generalisation of the results. A range of specific recommendations for improving the interaction between older patients and GPRs was made and implications for models of care beyond the training environment discussed. Phase 4 was completed by a factor analysis of the survey instrument.

Structure of the thesis and chapter headings

The thesis has been presented in Style 2, with the body of the work comprising chapters written in journal article style, with accompanying introductions. Given the style of presentation, it should be noted that each journal article carried its own discussion

regarding the rationale, methodology, findings and conclusions of the particular study. Of necessity, these discussions re-iterate a number of issues to render them intelligible to the audiences of the journals in which they were published, and hence there is some repetition of themes and material across chapters. The penultimate chapter is presented as a review paper with recommendations, intended as a resource for training practices. The thesis is concluded with a chapter reflecting upon the research, including discussion regarding the limitations of the findings and future research directions. The chapter headings are outlined below.

1. **Background and introduction to the research**
2. **Patients' attitudes to general practice registrars: a review of the literature**

   Bonney A, Phillipson L, Reis S, Jones SC, Iverson D. Patients' attitudes to general practice registrars: a review of the literature. *Educ Prim Care* 2009;20(5):371-8
3. **Older patients' attitudes to general practice registrars: a qualitative study**

   Bonney A, Phillipson L, Jones SC, Iverson D. Older patients' attitudes to general practice registrars - A qualitative study. *Aust Fam Physician* 2009;38(11):927-31
4. **General practice registrars: attitudes of older patients**

   Bonney A, Jones SC, Phillipson L, Iverson D. General practice registrars - attitudes of older patients. *Aust Fam Physician* 2010;39(6):419-24.
5. **Measuring older patients' attitudes to general practice registrars: exploratory factor analysis of a survey instrument**

Bonney A, Magee C, Caputi P. Measuring older patients' attitudes to general practice registrars: Exploratory factor analysis of a survey instrument. *Focus on Health Professional Education: A Multi-disciplinary Journal*. 2011:12(3):74-85

6. **The older patient, the doctor and the trainee: patients' attitudes and implications for models of care**

   Bonney AD, Jones SC, Iverson D. The older patient, the doctor and the trainee: patients' attitudes and implications for models of care. Wollongong: University of Wollongong; 2011

7. **The Older Patients' Attitudes to General Practice Trainees (OPAGPT) Scale: Trust, continuity and implications**

   Bonney AD, Jones SC, Iverson D. The Older Patients' Attitudes to General Practice Trainees (OPAGPT) Scale: Trust, continuity and implications. Wollongong: University of Wollongong; 2011

8. **Preparing general practice training for an ageing population**

   Bonney AD, Jones SC, Iverson D. Preparing general practice training for an ageing population. Wollongong: University of Wollongong; 2011

9. **Reflections and future directions**

References:

1. Trickett EJ. Multilevel community-based culturally situated interventions and community impact: an ecological perspective. *Am J Community Psychol.* Jun 2009;43(3-4):257-266.

2. Assman J, Czaplicka J. Collective memory and cultural identity. *New German Critique.* 1995;65(Spring-Summer):125-133.

3. Fisher E. Australian General Practice - A celebration. *History of the RACGP* 2008; http://www.racgp.org.au/history/celebration. Accessed 3.12.2009.

4. Dammery D. Fledgling general practice in Australia. *Aust Fam Physician.* Aug 2001;30(8):808-809.

5. Gandevia B. A history of general practice in Australia. *Med J Aust.* Aug 12 1972;2(7):381-385.

6. Loudon IS. James Mackenzie Lecture. The origin of the general practitioner. *J R Coll Gen Pract.* Jan 1983;33(246):13-23.

7. McWhinney I. *A Textbook of Family Medicine*. Second ed. New York: OUP; 1997.

8. Dammery D. The Royal Australian College of General Practitioners. The development--Part 3. *Aust Fam Physician.* Oct 2002;31(10):957-958.

9. ACRRM. Australian College of Rural and Remote Medicine - History. 2009; http://www.acrrm.org.au/history. Accessed 10.12.2009.

10. Sturmberg J, Heard S. General practice education in Australia. Current issues. *Aust Fam Physician.* May 2004;33(5):353-355.

11. RACGP. Historical timeline of The Royal Australian College of General Practitioners: 1980s. 2008; http://www.racgp.org.au/timeline/1980s. Accessed 2.2.2010.

12. RACGP. Historical timeline of The Royal Australian College of General Practitioners: 1990s. 2008; http://www.racgp.org.au/timeline/1990s. Accessed 2.2.2010.

13. ACIL-Tasman. *Evaluation of the regionalisation of general practice vocational training.* Canberra: Australian Government: Department of Health and Ageing;2005.

14. Kidd MR. Is general practice vocational training at risk? *Med J Aust.* Jul 7 2003;179(1):16-17.

15. GPET. About GPET. http://www.agpt.com.au/GPETtheCompany/AboutGPET/. Accessed 4.01.2010.

16. RACGP. RACGP General Practice Vocational Training Standards. 2010; http://www.racgp.org.au/Content/NavigationMenu/educationandtraining/vocationaltraining/RACGPGeneralPracticeVocationalTrainingStandards/2005_Standards_Trainers_and_Training_Posts.pdf. Accessed 20 March 2011.

17. GPET. GPET Flowchart. http://www.agpt.com.au/GPETtheCompany/GPETFlowchart/. Accessed 5.01.2010.

18. GPET. Annual Report 2009: General Practice Education and Training Limited. 2009; http://www.agpt.com.au//view/document.shtml?n86380-iqyxlna.pdf. Accessed 22.12.2009.

19. Britt H, Miller GC, Charles J, et al. *General practice activity in Australia, 2008-09. General practice series no. 25. Cat. no. GEP 25.* Canberra: AIHW;2009.

20. GPSRGP. Why is general practice important? *General practice. Changing the future through partnerships (Report of the GPSRGP)*: Commonwealth of Australia; 1998:17-23.

21. Starfield B. *Primary Care. Balancing health needs, services and technology.* 2nd ed. New York: Oxford University Press; 1998.

22. Knox SA, Harrison CM, Britt HC, Henderson JV. Estimating prevalence of common chronic morbidities in Australia. *Med J Aust.* Jul 21 2008;189(2):66-70.

23. RACGP. What is General Practice? 2005; http://www.racgp.org.au/whatisgeneralpractice. Accessed 12.08.2008, 2008.

24. Fuglsang H, Olesgaard P, Pedersen NF, Olesen F. [Patients' attitudes towards and satisfaction with interns in general practice. Practicing interns and patient satisfaction]. *Ugeskr Laeger.* Oct 7 1996;158(41):5768-5772.

25. Murphy AW. Opening Pandora's box: patients' attitudes towards trainees. Dublin General Practice Vocational Training Scheme Third Year Group 1991-1992. *Fam Pract.* Sep 1995;12(3):318-323.

26. Allen H, Bahrami J. Patients' attitude towards trainees. *J R Coll Gen Pract.* Nov 1981;31(232):680-682.

27. Nutting PA, Goodwin MA, Flocke SA, Zyzanski SJ, Stange KC. Continuity of primary care: to whom does it matter and when? *Ann Fam Med.* Sep-Oct 2003;1(3):149-155.

28. Guthrie B, Wyke S. Personal continuity and access in UK general practice: a qualitative study of general practitioners' and patients' perceptions of when and how they matter. *BMC Fam Pract.* 2006;7:11.

29. Hjortdahl P, Laerum E. Continuity of care in general practice: effect on patient satisfaction. *BMJ.* May 16 1992;304(6837):1287-1290.

30. Baker R, Mainous AG, 3rd, Gray DP, Love MM. Exploration of the relationship between continuity, trust in regular doctors and patient satisfaction with consultations with family doctors. *Scand J Prim Health Care.* Mar 2003;21(1):27-32.

31. Saultz JW, Albedaiwi W. Interpersonal continuity of care and patient satisfaction: a critical review. *Ann Fam Med.* Sep-Oct 2004;2(5):445-451.

32. Ionescu-Ittu R, McCusker J, Ciampi A, et al. Continuity of primary care and emergency department utilization among elderly people. *CMAJ.* Nov 20 2007;177(11):1362-1368.

33. Worrall G, Knight J. Continuity of care is good for elderly people with diabetes: retrospective cohort study of mortality and hospitalization. *Can Fam Physician.* Jan 2011;57(1):e16-20.

34. Baker R. Characteristics of practices, general practitioners and patients related to levels of patients' satisfaction with consultations. *Br J Gen Pract.* Oct 1996;46(411):601-605.

35. Kearley KE, Freeman GK, Heath A. An exploration of the value of the personal doctor-patient relationship in general practice. *Br J Gen Pract.* Sep 2001;51(470):712-718.

36. Spike N, Britt H. The clinical activities of VMA Registrars in each stage of training. Final report to Victoria Metropolitan Alliance. Melbourne: Monash University; 2006.

37. Knowles MS, Holton EF, Swanson RS. *The Adult Learner*. 5th ed. Houston: Gulf Publishing company; 1998.

38. Britt H, Miller G, Charles J, et al. *General practice activity in Australia 2006-07. General practice series no. 21. Cat. no. GEP 21.* Canberra: AIHW;2008.

39. Harris MF, Zwar NA. Care of patients with chronic disease: the challenge for general practice. *Med J Aust.* Jul 16 2007;187(2):104-107.

40. Soubhi H. Toward an ecosystemic approach to chronic care design and practice in primary care. *Ann Fam Med.* May-Jun 2007;5(3):263-269.

41. NHHRC. A Healthier future for all Australians - final report of the National Health and Hospitals Reform Commission - June 2009. 2009; http://www.health.gov.au/internet/nhhrc/publishing.nsf/Content/nhhrc-report. Accessed 28.09.2010.

42. CFPC. Patient-Centred Primary Care in Canada: Bring it on home. 2009; http://www.cfpc.ca/local/files/CME/FMF_2009/news/Bring%20it%20on%20Home%20FINAL%20ENGLISH.pdf. Accessed 17/11/2009.

43. Rosenthal TC. The medical home: growing evidence to support a new approach to primary care. *J Am Board Fam Med.* Sep-Oct 2008;21(5):427-440.

44. Lipman T. The future general practitioner: out of date and running out of time. *Br J Gen Pract.* Sep 2000;50(458):743-746.

45. Bonds DE, Foley KL, Dugan E, Hall MA, Extrom P. An exploration of patients' trust in physicians in training. *J Health Care Poor Underserved.* May 2004;15(2):294-306.

46. Brown JB, Dickie I, Brown L, Biehn J. Long-term attendance at a family practice teaching unit. Qualitative study of patients' views. *Can Fam Physician.* May 1997;43:901-906.

47. Reichgott MJ, Schwartz JS. Acceptance by private patients of resident involvement in their outpatient care. *J Med Educ.* Sep 1983;58(9):703-709.

48. Malcolm CE, Wong KK, Elwood-Martin R. Patients' perceptions and experiences of family medicine residents in the office. *Can Fam Physician.* Apr 2008;54(4):570-571, 571 e571-576.

49. Yancy WS, Jr., Macpherson DS, Hanusa BH, et al. Patient satisfaction in resident and attending ambulatory care clinics. *J Gen Intern Med.* Nov 2001;16(11):755-762.

50. Stange KC, Miller WL, McWhinney I. Developing the knowledge base of family practice. *Fam Med.* Apr 2001;33(4):286-297.

51. O'Dowd T, Jones S. Protocols: getting them right. *Practitioner.* Jun 22 1988;232(1451):713-714, 716.

52. Huston P, Rowan M. Qualitative studies. Their role in medical research. *Can Fam Physician.* Nov 1998;44:2453-2458.

53. Britten N, Jones R, Murphy E, Stacy R. Qualitative research methods in general practice and primary care. *Fam Pract.* Mar 1995;12(1):104-114.

54. Beaglehole R. *Basic Epidemiology*. Geneva: World Health Organization; 1993.

55. Armstrong D, Grace J. *Research methods and audit in general practice*. Oxford: Oxford Univ Press; 1997.

Chapter 2: Patients' attitudes to General Practice Registrars – a review of the literature

A version of this chapter was published as:

Bonney A, Phillipson L, Reis S, Jones SC, Iverson D. Patients' attitudes to general practice registrars: a review of the literature. *Educ Prim Care* 2009;20(5):371-8

Introduction

The benefits of a strong primary healthcare system in both improving health outcomes and reducing costs, are well documented.[1] General practice and its equivalents hold vital roles in delivering primary health care in developed nations; hence training the general practitioners (GPs) of the future has real significance for the health of our communities. Vocational training in general practice follows an apprenticeship model[2] with registrars learning in the workplace from practising GPs. In many settings, including the UK and Australia, this training occurs predominantly in the community, within practices whose primary roles are providing medical care for their patients.

Despite the desirability of this real-life learning environment, a conflict of expectations between patients and training practices can readily develop. A succession of registrars through a training practice is likely to disrupt the continuity and personalisation of care provided.[3] A large UK study reported that being a training practice was significantly associated with a reduction in patient satisfaction and reduced continuity was proposed as a cause.[4] Continuity of care which has been shown to be associated with patient trust,[5, 6] patient satisfaction[6, 7] and improved patient outcomes.[8] The importance of continuity is reflected in a Canadian study that found a primary reason patients chose

not to see a family medicine trainee was to maintain personal continuity with their regular doctor.[9] While continuity of care is highly valued by GPs and their patients it appears to assume special importance when chronic, complex or emotional problems are the focus of the encounter.[10]

Older patients in particular have a higher preference for seeing their 'personal' doctor than other age groups[11] and have been reported to be more negative in their attitudes to registrars.[12] Recent data from Australia[13] support previous research in the UK[14, 15] showing that registrars see fewer older patients, and fewer patients with chronic conditions, than established GPs; this is occurring in an environment in which there has been a significant increase in GP consultation rates for older patients.[16, 17] GP chronic disease management rates are likewise increasing with recent Australian data demonstrating that 40% of GP-patient encounters now involve management of a chronic condition.[17] Thus an unfortunate impasse is developing in that future GPs will require significant training in chronic disease management and in care of the elderly,[13] but it is these groups who especially value personal continuity and who are less willing to consult registrars. The challenge for training practices is obvious – they will need to care for increasing numbers of older and chronically ill patients, whilst dealing with older patients' resistance to consulting with GPRs. Finding common ground between patient, practice and training needs is required to successfully address this problem. Commitment to the patient is a key feature of general practice,[18] hence a thorough understanding of the way in which patients view registrars is required.

Thus the purpose of this project was to examine the extant literature concerning patient attitudes to primary care generalists-in-training (referred to as general practice registrars, or GPRs, in this paper) with the intent of determining the likely impact of

those attitudes on GPR training, and to identify specific research gaps related to GPR training involving older patients.

Methods

Uniform searches were conducted of major Australian and international medical literature databases (Ovid Medline, Proquest 5000, Cochrane Database of Systematic Reviews and the Australasian Medical Index - AMI). Material was included if it was published from 1980 through March 2009 in a peer-reviewed journal, in English or with a translation in English, and directly measured some aspect of patient attitudes to doctors training in general practice, family medicine or general internal medicine.

Initial search terms used to guide the searches are listed in Table 1. Combinations of these search terms were used to generate lists of articles that were scrutinised for papers relevant to the search purpose. Using key words from the research papers identified, a standardized search algorithm was developed, outlined in Table 1.

Table 1. Search terms

Initial search terms
Primary care, general practice, family practice, family medicine, registrar$, trainee$, hospital registrar$, interpersonal, continuity of care, personal care, personal doctor$, doctor-patient relationship, physician-patient relationship, elderly, older, aged, geriatric, patient attitude$ and patient satisfaction.
Search algorithm
General practice registrar* OR general practice trainee* OR general internal medicine trainee* OR general internal medicine resident* OR family medicine trainee* OR family medicine resident* OR primary care resident* OR primary care trainee* OR family practice trainee* OR family practice resident* AND patient feedback OR patient trust OR patient satisfaction OR patient assessment OR patient view* OR patient experience* OR patient attitude* OR patient expectation* OR patient perception*

Key words in the algorithm were run in combinations in the same databases until no new material was identified. The algorithm was then applied to the PubMed database and saved, thereby allowing the first author to be notified of any newly published material. Links to related articles and reference lists were manually checked further for relevant papers. The identified studies were analysed by methodology, content and theme.

Results

As of March 2009, 15 studies were identified that directly measured and reported on some aspect of patients' attitudes to GPRs (refer to Table 2).

Table 2. Summary of identified studies

AUTHOR/S	DESIGN AND SETTING	MAIN FINDINGS
Allen, Bahrami (1981)[3]	Single-centre cross-sectional survey, post-consultation, of 258 consecutive patients in an NHS general practice in the UK	Seventy four per cent of patients would see a GPR again; 48% of patients did not want their chronic illness treated by GPR; 75% were happy for any doctor for an urgent problem; 35% of older patients (>60 years) found the GPR not easy to talk to
Bradley (1981)[19]	Single centre cross-sectional survey, pre and post-consultation, of 248 consecutive patients in an NHS general practice in the UK	Patients had the same expectations of GPR as of the senior GP for management and communication; 55% percent of patients were not seeing their doctor of choice when seeing a GPR; fewer follow-up appointments made by GPRs; 48% of patients found the consultation was not relaxed
Reichgott, Schwartz (1983)[20]	Single-centre cross-sectional survey, pre-consultation, of 195 patients using mailed questionnaires, 'small' post-consultation survey of 46 patients, in an outpatients' general internal medicine faculty group practice in the USA	Seventy three per cent of private patients would allow resident participation in care; prior positive experience most important predictive factor; post visit – 70% fully satisfied, 20% partially satisfied; 71% of patients wanted faculty physician involvement at every visit, accepted residents if the responsibilities of trainees were carefully delegated and supervised; patient dissatisfaction associated with not knowing beforehand a resident was to be involved in their care
Rodney, et al (1986)[21]	Multi-centre cross-sectional patient satisfaction survey of 153 patients of resident and faculty physicians in three outpatient clinical centres of a hospital based family medicine residency in the USA	Patients reported residents' care to be as satisfying as that received from faculty physicians
Gerace, Sangster (1987)[22]	Single-centre cross-sectional satisfaction survey of 195 patients in a family medicine residency teaching centre in Canada	Four variables were identified as being important in determining patient satisfaction: if patients felt that the time spent with the supervising physician was adequate and explanations about their care and the teaching program were clear; if the patient felt comfortable expressing concerns about the teaching program to permanent staff; if the patients had a positive attitude to the teaching program; and if the patients felt the supervising physician was accessible
Sheets, et al (1991) [23]	Single-centre cross-sectional survey, post-consultation, of 254 patients in a university ambulatory care facility, teaching family medicine residents, in the USA	No significant difference in satisfaction ratings with gynaecologic care between faculty family physicians and residents

Murphy (1995)[12]	Multi-centre cross-sectional survey, pre-consultation, of 1510 consecutive patients from 10 private general practice teaching practices in Ireland	Ninety per cent of patients thought having a GPR an advantage; 77% expected usual standard of care when seeing a GPR and 51% were as comfortable with a GPR as their usual doctor. Attitudes were more negative if had never seen a GPR, male patient, patient aged over 40 years or urban practice. Forty one percent prefer to see their usual doctor after seeing trainee; 48% prefer to have long-standing problem like hypertension treated by their usual GP; 45% of patients have no preference whether a GPR or GP treats an urgent problem (sick child with a high temperature); 35% of patients were not as comfortable with a GPR as their usual GP; and 55% prefer to discuss relationship problems with their usual GP
Fuglsang, et al. (1996)[24]	Multi-centre cross-sectional survey, post consultation, of 405 consecutive patients from 12 general practice teaching practices in Denmark	Ninety three percent of patients were fairly or very satisfied with the GPR consultation; 87% fairly sure would see GPR again; 85% thought the GPR was as easy to talk with as own doctor; 47% did not feel fully informed of training system
Brown, et al. (1997)[25]	Single-centre qualitative – five focus groups with a total of 42 patients who had attended a single family medicine teaching unit in Canada for more than 15 years	Patients not particularly affected by the constant change in residents on the team. Relationship building, team structure and professional, responsible staff attitudes contributed to continuity and long-term attendance by patients. Access valued by patients, interactions with nurse and reception staff important to patient acceptance of the training practice
Boutin-Foster, Charlson (2001)[26]	Single-centre cross-sectional survey of 74 patients with whom their resident physician had identified a problematic relationship, and 77 patients identified as having a satisfying physician-patient relationship; at an academic general internal medicine outpatient unit in USA	Residents in problematic doctor-patient relationships reported by patients as being less accessible and less able to manage their medical complaints
Yancey, et al. (2001)[27]	Multi-centre cross-sectional survey, post-consultation, of 288 consecutive patients from 4 general internal medicine ambulatory care clinics from a University teaching hospital and Veterans Affairs hospital in the USA	Patients generally satisfied, though patients of faculty physicians were more likely to be highly satisfied than patients of residents. After controlling for patient characteristics, doctor's personal manner and respect toward the patient were the most important factors in satisfaction
Bonds, et al. (2004)[28]	Single-centre cross-sectional interview survey, post-consultation, of 217 randomly selected patients of a general internal medicine academic medical centre in the USA	Overall high levels of trust in residents; high trust in the doctors of the facility predicts high trust in the resident; gender concordance between patient and resident promoted trust; older patients less likely to be high trusters as were patients of female residents; 94% of patients felt better knowing a supervising physician was involved in their care

Ruiz-Moral, et al. (2007)[29]	Multi-centre prospective cohort study, of 702 consecutive patients from 10 family medicine teaching units in Spain; pre-consultation questionnaire and post-consultation phone survey	Residents fulfilled patients expectations of their consultations acceptably; 87% of patients were satisfied; no difference with age. Patients' most common expectations were the doctor showing an interest and listening, information about a diagnosis, sharing problems and doubts; rate of main expectations met was 76.5%
Caballero Jauregui, et al. (2008)[30]	Multi-centre cross-sectional survey of 220 patients from family medicine teaching centres in Madrid, Spain	Ninety two per cent of patients had the same trust in the resident as the family physician tutor; high satisfaction with time spent, listening and attention of the resident; 63% did not know exactly what a family medicine resident was; 60% did know a resident was a doctor
Malcolm, et al. (2008)[9]	Single-centre cross-sectional survey, pre-consultation, of 251 consecutive patients in a private family medicine practice in Canada	Satisfaction with care and overall comfort ranked excellent at around 90% each; 71% would choose to have residents involved in their care again; female patients preferred female residents; most common reason for not seeing a resident was to continue relationship with their own doctor (54.2%)

Overview of the identified studies

Nine of the 15 studies were from single centres.[3, 9, 19, 20, 22, 23, 25, 26, 28] Thirteen were cross-sectional surveys,[3, 9, 12, 19-24, 26-28, 30] one a prospective cohort study[29] and one a qualitative focus group discussion study.[25] The practice settings of the studies were diverse, including privately and institutionally funded facilities in Ireland.[12] UK,[3, 19] USA,[20, 21, 23, 26-28] Canada,[9, 22, 25] Denmark[24] and Spain.[29, 30] Variables investigated included patient willingness to be seen and treated by a GPR,[3, 9, 12, 20, 24] patient satisfaction with aspects of their contact with a GPR[9, 20-24, 27, 29, 30] and factors that influenced these attitudes.[3, 9, 12, 20, 22, 25-28] Patients' attitudes to GPRs were often compared with their attitudes to their usual doctors or the GPRs' supervisors.[12, 19, 21, 23, 24, 27, 30] Five of the studies made some use of validated instruments;[21, 23, 26-28] in four studies tests for internal reliability were performed and in each case found acceptable.[21, 23, 27, 28] Two cross-sectional survey studies had been applied across multiple centres and

used instruments with demonstrated internal reliability.[21, 27] There were no multi-method studies.

Patient responses

Satisfaction rates after having seen a GPR were reported as 87%,[23, 29] 90%,[9, 20] 93%[24] and as being equal to patient satisfaction with the GPRs' supervisors,[21] When questioning whether patients would see GPRs again, studies reported positive responses of 71%,[9] 74%[3] and 87%.[24] Notable negative responses were 48% of patients preferring their usual doctor to manage chronic problems,[3] rising to 55% in patients over 40 years;[12] in addition, 35% of patients over 60 years reported GPRs as not being easy to talk to.[3] While the proportions varied across studies, a significant number of patients desired or appreciated the involvement of a senior GP in their management (41%,[12] 71%[20] and 94%[28]) and reported not understanding the training system or the status of GPRs (17%,[3] 47%,[24] 59%[9] and 63%[30]).

Influencing factors - Patient characteristics

Patients reported that they were more willing to see a GPR for a perceived minor problem[12] or for a pressing medical concern,[3, 12] However, seeing their usual doctor was more important if they presented with a personal[12] or chronic problem,[3, 12] One study reported that patients aged over 40 years held more 'negative' attitudes towards GPRs[12] and another that increasing age of the patient was inversely related to measures of trust in GPRs.[28] In the latter paper, female gender and higher education were associated with increased trust in the GPR.[28] Urban patients[12] and patients with low social support[26] were reported to be more likely to express negative attitudes towards GPRs. Patients who had not seen a GPR before had more negative attitudes,[12] and having a satisfactory

prior experience with a GPR was predictive of positive attitudes.[20] A positive patient attitude to the teaching program was shown to be a positive motivator to seeing a GPR[9] and predictive of increased satisfaction with attending a teaching practice.[22]

Practice characteristics

Practice factors that positively influenced attitudes included the practice having a clear team structure headed by senior family physician,[25] clearly defined delegation and supervision by the senior physician,[20] perceived accessibility of the senior physician[22] and the patient having established trust in the medical facility itself. [28] Dissatisfaction was associated with the practice not informing patients beforehand that a trainee was to be involved in their care.[20]

Characteristics of the GPR

Gender concordance between the GPR and the patient was reported as being associated with increased patient trust,[28] and for female patients associated with the patient feeling more comfortable with the GPR.[9] Patients were more likely to be dissatisfied with their relationships with GPRs if the GPR was perceived as being less accessible and less able to manage the patient's medical problems.[26] The GPRs' level of interpersonal and communication skills were reported to be associated with patient satisfaction in two studies.[27, 29]

Discussion

Patient attitudes to GPRs, as described in the literature, can be grouped into the broad domains of patient acceptance, desire for continuity of care, trust, and a desire for meaningful communication. It is probable that these domains overlap. They are influenced by factors pertaining to the patient, the training practice and/or the GPR.

Patient acceptance of being treated by GPRs

Overall, patient acceptance of GPRs and satisfaction with them being involved in their care has been shown to be high, consistent with research regarding patient attitudes to being involved in undergraduate medical education.[31-33] Patients generally expressed an altruistic attitude to being involved in training the doctors of the future, and this aided acceptance.[9, 22] However, there were some noteworthy exceptions, with reduced patient acceptance being associated with older patient age,[12] the management of chronic conditions[3, 12] and patient presentations with personal or emotional concerns.[12]

Patient attitudes to continuity of care

Patients seeing GPRs generally valued follow-up by their usual GP,[12] usual GP involvement in their care[20, 28] or the accessibility of their usual GP.[22] This, and the relative reluctance of older patients and those with chronic conditions to be treated by GPRs[12] is consistent with the medical literature on continuity of care.[6, 34] Previous research has shown continuity means more to patients who share a history of significant events with their physician,[35] describing the sense of security access to a regular GP provides those who are chronically ill.[36] These factors work against the willingness of these patients to see a newly introduced GPR.

Patient trust

Along with a higher value placed on personal continuity,[34] and less positive attitudes to GPRs,[12] older patients were reported to have reduced trust in GPRs.[28] The association between continuity, patient trust and satisfaction has been previously discussed in the literature.[6, 37] Trust in the treating primary care physician has been shown to be positively associated with patient satisfaction, the duration of the doctor-patient

relationship and the number of visits to the physician.[37] The GPR, with a relatively brief period of time in a practice, is unlikely to have the opportunity to establish the level of trust that his/her supervisors have previously established. In the GPRs' favour is the description of 'institutional trust', whereby the patients' trust in a medical facility carried over to include trust in the staff of the facility.[28] Thus patients may initially place trust in the GPRs based on their trust in their usual GP or their usual medical practice as a whole.

Desire for meaningful communication

Some dissatisfaction with being treated by GPRs arose from problems with communication, either with the practice about the training program,[20, 24] or with the GPRs themselves.[3, 27] It has been recognised elsewhere that patients' understanding of the role of doctors-in-training requires improvement[38, 39] as does communication around transfer of care between doctors.[40] Patients with chronic illnesses have reported less satisfactory doctor-patient communication if they did not have personal continuity with a regular GP,[36] a difficulty which has the potential to be compounded by the relative inexperience of the GPR.[27]

Implications for training practices and future research

The literature creates a picture of the challenges that GPR training practices encounter. First, patients and especially older patients may not understand what either a training practice or a GPR is. Developing and assessing strategies to help patients understand both of these concepts should be a research priority. Second, patients appear to be accepting of GPRs following an encounter, even though they may not have understood the role of the GPR. This may, however, be dependent on whether the type of condition

stimulating the visit was acute, chronic or personal. This issue is central to the overall problem and requires additional research, including research that focuses on understanding what actually transpired during the encounter, for example by direct observation.[41] Third, continuity appears to be a critical factor in the formulation of attitudes and subsequent behaviour related to GPRs. However patients' concepts of what constitutes appropriate continuity in this context are not well understood and may include accessibility of their usual GP, involvement of usual their GP or usual GP involvement in follow-up. Research specific to the context of training practices is needed to understand what continuity means and how it must be operationalised for it to be acceptable to patients.

Considering the above, an immediate way forward would be to investigate various 'GPR training models' that have as their central focus continuity of care. One approach could be a shared-care model of chronic disease management between the GP and the GPR, with clearly defined delegation by the supervising GP.[20] This would be aided by transparent practice team structures[25] and the availability of the supervising GP as required.[22] Patients frequently expressed a lack of knowledge of the way that general practice training functions.[3, 9, 24, 30] Thus the 'model' would need to be sufficiently flexible so patients' concerns could be addressed which should, in turn, enhance patient acceptance and trust.[22] Promoting the role patients have in training the GPs of the future has the potential to increase patient enthusiasm for seeing GPRs.[9, 22]

Conclusions

In relation to the extent of general practice training undertaken worldwide there is a paucity of research into the attitudes of patients towards GPRs and the impact of these

attitudes on training opportunities. The authors were able to identify just 15 papers published from 1980 onwards.

The available literature indicates that enquiry into patient understandings of trust, continuity of care and having a personal doctor and how these are affected by GPRs has the potential to improve patient acceptance of GPRs, especially amongst older patients and those with chronic or personal conditions. Practice organisational structures, dynamics and communication policies as well as the attitudes and communication skills of the GPRs also may affect patient attitudes and offer other avenues for research. Research should focus on the development of practice-based 'models' that facilitate engagement of registrars in a meaningful way in the management of older and chronically ill patients, provide excellent training opportunities and meet patients' needs for continuity of care. In this era of increasing threat to continuity,[42] demonstrating to the GPs of the future this central tenet of general practice is critical. Given the complexity of the issue and the role that context plays it is suggested that multi-method research strategies are most appropriate.[43] To address these challenges in an efficient and effective manner collaborative research involving GP professional bodies, training groups and academia is suggested.

References:

1. Starfield B. *Primary Care. Balancing health needs, services and technology.* 2nd ed. New York: Oxford University Press; 1998.

2. Sturmberg J, Heard S. General practice education in Australia. Current issues. *Aust Fam Physician.* May 2004;33(5):353-355.

3. Allen H, Bahrami J. Patients' attitude towards trainees. *J R Coll Gen Pract.* Nov 1981;31(232):680-682.

4. Baker R. Characteristics of practices, general practitioners and patients related to levels of patients' satisfaction with consultations. *Br J Gen Pract.* Oct 1996;46(411):601-605.

5. Hjortdahl P, Laerum E. Continuity of care in general practice: effect on patient satisfaction. *BMJ.* May 16 1992;304(6837):1287-1290.

6. Baker R, Mainous AG, 3rd, Gray DP, Love MM. Exploration of the relationship between continuity, trust in regular doctors and patient satisfaction with consultations with family doctors. *Scand J Prim Health Care.* Mar 2003;21(1):27-32.

7. Saultz JW, Albedaiwi W. Interpersonal continuity of care and patient satisfaction: a critical review. *Ann Fam Med.* Sep-Oct 2004;2(5):445-451.

8. Worrall G, Knight J. Continuity of care for older patients in family practice: how important is it? *Can Fam Physician.* Jun 2006;52:754-755.

9. Malcolm CE, Wong KK, Elwood-Martin R. Patients' perceptions and experiences of family medicine residents in the office. *Can Fam Physician.* Apr 2008;54(4):570-571, 571 e571-576.

10. Guthrie B, Wyke S. Personal continuity and access in UK general practice: a qualitative study of general practitioners' and patients' perceptions of when and how they matter. *BMC Fam Pract.* 2006;7:11.

11. Kearley KE, Freeman GK, Heath A. An exploration of the value of the personal doctor-patient relationship in general practice. *Br J Gen Pract.* Sep 2001;51(470):712-718.

12. Murphy AW. Opening Pandora's box: patients' attitudes towards trainees. Dublin General Practice Vocational Training Scheme Third Year Group 1991-1992. *Fam Pract.* Sep 1995;12(3):318-323.

13. Spike N, Britt H. The clinical activities of VMA Registrars in each stage of training. Final report to Victoria Metropolitan Alliance. Melbourne: Monash University; 2006.

14. Carney TA. Clinical experience of a trainee in general practice. *J R Coll Gen Pract.* Jan 1979;29(198):40-44.

15. Stubbings CA, Gowers JI. A comparison of trainee and trainer clinical experience. *J R Coll Gen Pract.* Jan 1979;29(198):47-52.

16. Hippisley-Cox J, Fenty J, Heaps M. Trends in Consultation Rates in General Practice 1995 to 2006: Analysis of the QRESEARCH database. Final Report to the Information Centre and Department of Health. 2007.

http://www.ic.nhs.uk/webfiles/publications/gp/QRESEARCH%20Consultation%20Rates%20Report%20FINAL.pdf. Accessed 5th May 2009.

17. Britt H, Miller G, Charles J, et al. *General practice activity in Australia 2006-07. General practice series no. 21. Cat. no. GEP 21.* Canberra: AIHW;2008.

18. McWhinney I. *A Textbook of Family Medicine*. Second ed. New York: OUP; 1997.

19. Bradley NC. Expectations and experience of people who consult in training practice. *J R Coll Gen Pract.* Jul 1981;31(228):420-425.

20. Reichgott MJ, Schwartz JS. Acceptance by private patients of resident involvement in their outpatient care. *J Med Educ.* Sep 1983;58(9):703-709.

21. Rodney WM, Quigley CB, Werblun MN, Sumbureru D, Shear CL. Satisfaction of continuity patients in a family medicine residency--validation of a measurement tool. *Fam Pract Res J.* Spring 1986;5(3):167-176.

22. Gerace T, Sangster J. Factors determining patients' satisfaction in a family practice residency teaching center. *J Med Educ.* Jun 1987;62(6):485-490.

23. Sheets K, Caruthers B, Schwenk T. Patient satisfaction with gynecologic care provided by family practice resident physicians. *Fam Pract Res J.* Dec 1991;11(4):421-428.

24. Fuglsang H, Olesgaard P, Pedersen NF, Olesen F. [Patients' attitudes towards and satisfaction with interns in general practice. Practicing interns and patient satisfaction]. *Ugeskr Laeger.* Oct 7 1996;158(41):5768-5772.

25. Brown JB, Dickie I, Brown L, Biehn J. Long-term attendance at a family practice teaching unit. Qualitative study of patients' views. *Can Fam Physician.* May 1997;43:901-906.

26. Boutin-Foster C, Charlson ME. Problematic resident-patient relationships: the patient' s perspective. *J Gen Intern Med.* Nov 2001;16(11):750-754.

27. Yancy WS, Jr., Macpherson DS, Hanusa BH, et al. Patient satisfaction in resident and attending ambulatory care clinics. *J Gen Intern Med.* Nov 2001;16(11):755-762.

28. Bonds DE, Foley KL, Dugan E, Hall MA. An exploration of Patients' Trust in Physicians in Training. *J Health Care Poor and Underserved.* 2004;15:294-306.

29. Ruiz-Moral R, Perula de Torres LA, Jaramillo-Martin I. The effect of patients' met expectations on consultation outcomes. A study with family medicine residents. *J Gen Intern Med.* Jan 2007;22(1):86-91.

30. Caballero Jauregui M, Salamanca Sanchez-Escalonilla MT, Saniger Herrera JM, Munoz Gonzalez F, Miguel Calvo I, Garcia Ledesma L. [Do our patients know what a family medicine resident is?]. *Aten Primaria.* Jan 2008;40(1):15-19.

31. Cooke F, Galasko G, Ramrakha V, Richards D, Rose A, Watkins J. Medical students in general practice: how do patients feel? *Br J Gen Pract.* Jun 1996;46(407):361-362.

32. Choudhury TR, Moosa AA, Cushing A, Bestwick J. Patients' attitudes towards the presence of medical students during consultations. *Med Teach.* Nov 2006;28(7):e198-203.

33. Larsen K, Perkins D. Training doctors in general practices: a review of the literature. *Aust J Rural Health.* Oct 2006;14(5):173-177.

34. Nutting PA, Goodwin MA, Flocke SA, Zyzanski SJ, Stange KC. Continuity of primary care: to whom does it matter and when? *Ann Fam Med.* Sep-Oct 2003;1(3):149-155.

35. Mainous AG, 3rd, Goodwin MA, Stange KC. Patient-physician shared experiences and value patients place on continuity of care. *Ann Fam Med.* Sep-Oct 2004;2(5):452-454.

36. von Bultzingslowen I, Eliasson G, Sarvimaki A, Mattsson B, Hjortdahl P. Patients' views on interpersonal continuity in primary care: a sense of security based on four core foundations. *Fam Pract.* Apr 2006;23(2):210-219.

37. Hall MA, Zheng B, Dugan E, et al. Measuring patients' trust in their primary care providers. *Med Care Res Rev.* Sep 2002;59(3):293-318.

38. Santen SA, Hemphill RR, Prough EE, Perlowski AA. Do patients understand their physician's level of training? a survey of emergency department patients. *Acad Med.* Feb 2004;79(2):139-143.

39. Santen SA, Rotter TS, Hemphill RR. Patients do not know the level of training of their doctors because doctors do not tell them. *J Gen Intern Med.* May 2008;23(5):607-610.

40. Roy MJ, Herbers JE, Seidman A, Kroenke K. Improving patient satisfaction with the transfer of care. A randomized controlled trial. *J Gen Intern Med.* May 2003;18(5):364-369.

41. Stange KC, Flocke SA, Goodwin MA, Kelly RB, Zyzanski SJ. Direct observation of rates of preventive service delivery in community family practice. *Prev Med.* Aug 2000;31(2 Pt 1):167-176.

42. Freeman GK, Olesen F, Hjortdahl P. Continuity of care: an essential element of modern general practice? *Fam Pract.* Dec 2003;20(6):623-627.

43. Stange KC, Miller WL, McWhinney I. Developing the knowledge base of family practice. *Fam Med.* Apr 2001;33(4):286-297.

Chapter 3: Older patients' attitudes to General Practice Registrars: A qualitative study

A version of this chapter was published as:

Bonney A, Phillipson L, Jones SC, Iverson D. Older patients' attitudes to general practice registrars - A qualitative study. *Aust Fam Physician* 2009;38(11):927-31

Introduction

The doctor-patient relationship is so central to the discipline of general practice that for some authorities, the relationship defines the discipline itself.[1] The sum of personal knowledge and human interaction shared over time can develop into something of significant worth to both the patient and the doctor, forming what Balint termed a 'mutual investment company'.[2] Thus older patients,[3] those with chronic illness[3-6] and those who have shared significant life events with their general practitioner (GP),[7] place particular importance in maintaining continuity of care with their personal doctor. GPs in turn value continuity with 'their' patients.[6, 8]

This gives rise to a potential dilemma in training future general practitioners. GPs involved in post-graduate teaching need to integrate registrars on short-term rotations into their practices, and have them see and manage older patients, at the risk of sacrificing continuity of care and patient satisfaction.[9, 10] The historical concerns that GPRs are not managing the care of sufficient older patients, or patients with chronic illness, to provide a balanced clinical training experience,[11] have recently been

revived.[12] With an ageing population and a burgeoning caseload of chronic disease management,[13] the conflicts GP supervisors face in trying to meet patient and registrar needs are likely to increase. A thorough understanding of the patient's perspective of seeing GPRs will be required if a model is to be developed that is patient-centred, provides a representative clinical caseload for GPRs and maintains continuity of care and satisfaction for older patients. Thus this first qualitative study of older patients' attitudes to GPRs, incorporating both patient interviews and direct observation, was conducted to involve the 'patient voice' in moving towards developing such a model.

Method

Interview instrument and practice selection

Ethics approval was obtained from Human Research Ethics Committee of the University of Wollongong before commencing the study. Following a literature review, a semi-structured interview guide was developed to explore patient's attitudes towards general practice registrars and their medical care in general. The interview guide was structured as a flow chart with one arm exploring patients' experiences if they had seen a GPR, the other arm exploring possible barriers if they had not. Three GP training practices in regional and rural southeast NSW, Australia, agreed to participate in the study. The practices were purposively selected to represent a range of geographic locations and practice styles. Each practice received $100 to compensate for the staff time involved.

Direct practice observation

The Chief Investigator spent approximately two hours observing the communication content and style employed by reception staff concerning GPRs in each of the practices. Data were also gathered regarding the size and style of the practices.

Recruitment of participants and conduct of interviews

Between June and November 2008, patients were invited to participate in the study by practice staff who provided an information pack to eligible patients aged 60 years and over after their consultations. Patients wishing to participate contacted the researchers directly. Purposive sampling of male patients and patients who had not seen a registrar was undertaken towards the end of the study as these groups were initially under-represented.[14]

The range of time from consultation to interview was one week to six weeks. Six patients from Practice A who had offered to participate were not interviewed as more than two months had elapsed from their consultation before the researchers were able to interview them.

The average duration of the interviews was 15 to 20 minutes. The interviews were conducted by Authors 1 and 2 and research assistants, recorded and transcribed verbatim. Patients who were interviewed received a $20 gift voucher in recognition of their participation.

Analysis

Two investigators agreed upon a basic coding schedule, derived from the factors shown to influence patient attitudes in the literature review. The Chief Investigator undertook a template approach to analysis of the transcripts as described by Crabtree and Miller.[15] The initial codes were expanded on readings of the text. Segments of similarly coded text were then grouped for re-reading and analysis in an iterative process. The resultant findings were reviewed by the other authors and compared with the literature review and the practice observations in order to comment on their validity.[16]

Results

Characteristics of the practices are outlined in Table 1, and response rates and characteristics of the interviewees are outlined in Table 2.

Table 1: Characteristics of practices and practice styles

Characteristics	**Practice A**	**Practice B**	**Practice C**
Location	Rural Centre	Regional Centre	Regional City
Number of doctors	7 total, 2 GPRs	13 total, 3 GPRs	6 total, 1 GPR
Length of continuity with regular GP of interviewees	Up to 15 years	Up to 30 years	Up to 47 years
Interviewees' perceptions of availability of regular GP	Waiting time 1-2 weeks	Waiting time 1-2 weeks	Usually within 1 week
Terms used to describe GPRs	Usually Dr X, on occasion 'Dr X who is with us for 6 months', occasionally 'GP-in-training'	Usually Dr X, on occasion 'Dr Supervisor's registrar'	Usually Dr X, on occasion 'our registrar' or 'Dr X who is with us for 6 months'

Table 2: Response rates and characteristics of the 38 interviewees

	Practice A	**Practice B**	**Practice C**
Interviewees' responses to invitations	Unsure of number offered invitation packs, 50 accepted packs, 19 responded	Seventy patients offered invitation packs, 60 accepted packs, 20 responded	Unsure of number offered invitation packs, 6 accepted packs, 5 responded
Gender/age of interviewees	Six female, seven male Ages 61-83 years	Twelve female, eight male Ages 61-92 years	Two female, three male Ages 62-77 years

On analysis of the text, the attitudes of the patients interviewed were grouped into the domains of 'desire for continuity', 'desire for access', 'openness', 'trust' and 'desire for meaningful communication'.

Desire for continuity of care

The pervasive underlying theme of the interviews was the depth of the relationship many of these older patients had with their regular doctor.

> "Well he's known me since I was fifteen. He just knows my case history. He's more of a friend than a doctor." Female 62 years

> "I think it's just being familiar with him and understanding him. We think he's a very good GP and you know, occasionally, we may have a bitch about him, but who doesn't? We've sort of got used to him and we are very confident with the experiences we've had with him." Male 64 years

Patients expressed a clear preference for continuity with 'their' trusted doctor, tempered with an acknowledgement that it might not be possible to see them for every consultation. Patients therefore had become adept at prioritising the problems for which they sought continuity, usually for significant chronic conditions.

> "It is good to see the same doctor. If you've got tonsillitis it doesn't really matter who you see. If you are working through an issue it is helpful to go back to the same person." Female 61 years

Registrars usually faced the difficulty of having no prior personal connection with these patients; sometimes patients expressed their discomfort in seeing a registrar in terms of personal cost.

> "If it was something I felt required continuity you don't want to see this one this month and someone else the next month, because you've got to establish a relationship all over again." Female 64 years

Thus consultations with the registrars were seen as a supplement to and not a replacement for contact with their usual doctor. Patients often had an expectation that their usual GP would be made aware of significant medical matters arising from a consultation with a registrar.

> "They've got access to my records and they would refer to the particular doctor that I'm used to seeing I'm sure." Female 83 years

Patients differentiated continuity of medical information across the practice from personal continuity with 'their' doctor. Patients frequently expressed that their relational anchor was with their usual doctor, whilst their medical care had been delegated to the GPR.

> "Certainly the medical knowledge can be transferred but the person-to person or the personal part I don't think that can be transferred." Male 64 years

Desire for access

For most patients timeliness was more important than continuity for urgent matters and convenience consultations. Patients valued the improved access to care that the registrars provided. Interestingly, patients did not differentiate the role of the GPR in this context from locums or casually employed doctors.

> "My doctor is a very busy doctor, I appreciate that. If it's something that I can't get in to see him straight away I will see another doctor. So if it's a doctor I haven't been to before I'm quite willing to see him but I wouldn't know if he's a fully qualified GP or a registrar or what he is, whether he's just joined the practice, but he's a doctor and I'd be happy to see him" Female 70 years

For perceived urgent problems, the patients were more likely to accept an unknown doctor's technical expertise without expecting the same kind of interaction they had come to expect from their usual GP.

> "Hey mate, if you're in trouble you'll see anybody. Any doctor. Even the bloody witch doctor." Male 79 years

This initial contact, if positive, could provide the basis for an ongoing doctor-patient relationship with the registrar.

> "And that's probably really when that trust or relationship was established and I had no complaints and I had no problems with going back to that particular doctor again when I had this small accident." Male 64 years

However a noticeable trend observed was that if the degree of continuity with their regular GP was high, and access to their regular GP reasonable, patients saw little point in seeing a GPR at all.

> "He is busy, you know we've got to wait for a little while in the surgery for him (GP), but if my arms and legs aren't dropping off I'll wait, you know…we get in within the week you know, a couple of days." Male 63 years

Openness

In the context of registrars providing this 'adjunct role' to their care, patients expressed an open-minded attitude towards them. Patients largely eschewed expressing gender, age or ethnic preferences and were generally tolerant of seeing a doctor who was undergoing vocational training.

> "You know they're very, very nice; accept them for what they are, whether they're black, brown, brindle or what…we're not bigoted about anything" Female 73 years

> "I know the doctors have got to start somewhere and they've all got to learn …by going out into the practice it's their only chance isn't it?" Female 77 years

Patients were also confident in their ability to make their own judgments as to the registrar's ability to meet their needs.

> "And if they can't, if they don't measure up to what the patient is expecting the patient should then go to back to the practice and say what they think." Female 73 years

The patient's perception of the attention and thoroughness of the registrar was most frequently the determinant of a positive or negative assessment.

> "She went to a lot of trouble to check out everything. Even after the operation she was very excited about the fact I'm doing better." Male 62 years

Trust

The patients interviewed expressed very high levels of trust in their usual GPs, trust that usually extended to include the practices they attended as a whole.

> "Well as a lay person I've got confidence in the practice and as I said I've always been looked after well." Male 71 years

The patients expressed only a modest level of interest in the qualifications or training of the doctors they saw, including GPRs. They frequently expressed that 'someone', on occasion the practice principals, would have ensured that the doctor they were seeing was competent to work in private practice.

> "I would trust my usual doctor's judgement. I don't think he would have a doctor who wasn't capable of doing the job." Female 74 years

The vicarious trust that the registrars enjoyed was not unqualified. Some patients required reassurance that the practice had adequate supervision in place and that patients were made aware of the training status of the registrars.

> "It would make sense to me to have some sort of oversight. What's the point of training if they're going off doing their own thing." Female 68 years

> "I would like to be aware that the person is still under training. Then I've got my full facts and I don't just make a judgement and say – look, you know he's a bit of a twit." Male 64 years

Meaningful communication

Communication was very important to patients, both information transfer and interpersonal communication. Information technology did not compensate for the loss of the depth of understanding of their usual doctor-patient relationship when the patient needed to see a GPR.

> "When I say they (GPRs) don't know the full picture, they've got it all on the computer. You've got to know there's a relationship and they haven't got that same feel that what it is that's frightening you or worrying you. You can't do anything about that. You can't sort of put that onto a computer." Female 70 years

Patients were generally positive about the communication skills of the registrars they had recently seen. This assessment formed an important part of the basis of their overall attitudes towards the registrars.

> "Well you can talk to him. That's the main thing. You could talk to him and he'd listen to you." Male 66 years

Overlapping with the theme of trust, a significant number of patients stated that they would feel more reassured if their practice provided them with information regarding registrars and the training program.

> "I find that perhaps the staff should tell you "ok he's here for so long and he's here for so long and or this one has joined the Practice." I don't know that it would make any difference but maybe would inspire confidence in some other people" Female 83 years

It was notable that patients were not familiar with the term 'registrar' and were unaware of a formal training program for general practitioners.

> "I didn't have any idea, actually…about the registrar" Male 61 years

> *If you were offered to see the registrar … would you see the registrar? "*Ah, yeah. I don't know who the registrar is though." Male 73 years

Discussion

The doctor, the patient and the registrar

The authors had not been able to identify any published qualitative studies into the attitudes of patients towards GPRs, and this study provided an initial qualitative insight into the attitudes of older patients.

The striking feature of the study was that whilst it initially sought to investigate the two-way relationship between the patient and GPR, it quickly became apparent that among this age group of patients, a three-way relationship was being described. For most patients their interaction with the GPR was viewed in the context of their relationship with their usual GP. Previous research had shown that patients have similar expectations of GPRs and their supervisors regarding their technical skills.[9, 11] This study suggests that patients may not have the same level of expectation regarding the depth of the doctor-patient relationship with a GPR. Further enhancement of the interaction between

older patients and GPRs seems unlikely unless the three-way relationship of GP-patient-GPR is recognised and taken into account.

Implications for training practices

Older patients' attitudes to GPRs can be conceptualized as inhabiting five domains; desire for continuity, desire for access, openness, trust and a desire for meaningful communication. Attention to these domains by training practices has the potential to enhance the engagement of older patients with GPRs whilst maintaining patient satisfaction. Continuity of care was shown to have significant personal meaning for the patients, a finding consistent with the extensive literature in this field.[3-5, 10, 17, 18] Older patients do seem content enough to consult GPRs for urgent or minor problems, as has been shown previously.[9, 11] Whilst helping meet patients' desire for access to medical care,[6, 19] this ad hoc approach is limited in its ability to deliver a learning environment that values continuity of care or provides training in chronic and complex medical care. Systems need to be developed so that patients maintain relational and informational continuity with their usual GPs in a team environment with GPRs and practice staff.[20] This challenge is conceptually similar to that involved in implementing team care in chronic disease management.[4, 21] Models of teaching where continuity of care is shared between the GPR and the supervisor are one possibility. Such models are encountered in other training contexts and have been shown to have high levels of acceptability.[20, 22] This study also raises the potential for improved patient acceptance through practices promoting the medical record as a vehicle for continuity and communicating effectively with patients regarding the training programme, the qualifications and status of GPRs within the practice team and the length of time registrars will be working in a practice.

Limitations of the study

Some possible limitations in the study need to be recognised. Volunteers for telephone interviews may differ in some core areas of attitude to non-volunteers, and this may have influenced the study's findings. The Chief Investigator is a GP, and whilst neither his patients nor his practice were involved, this may also have affected the interviews he undertook and his analysis of the data. A common difficulty was in helping patients identify who a registrar was. The practice observation assisted in ensuring accuracy about the identity of the doctors discussed, but it is possible the interviewers' explanations influenced the participants' responses. Nonetheless, the authors had felt that 'data saturation' had been reached from the interviews conducted and that the responses developed a consistent and cohesive picture.

Future research

Whilst there is some reference in the Australian literature to patients' views on being involved in undergraduate medical training in general practice,[23, 24] patients' views regarding post-graduate training have received little attention. The findings and recommendations of this study require further research. Patient attitude surveys to test a number of the hypotheses generated by this qualitative study are a practical approach.[25] Research is required to assess the feasibility and acceptability of the strategies proposed to assist engagement of older patients and GPRs. Follow-up research to assess patient satisfaction and achievement of favourable medical outcomes and educational goals is also required for a patient-centred approach to be considered to be evidence-based.

References:

1. McWhinney I. *A Textbook of Family Medicine*. Second ed. New York: OUP; 1997.

2. Balint M. *The doctor, his patient and the illness*. 2nd ed. Edinburgh: Churchill Livingstone; 2000.

3. Nutting PA, Goodwin MA, Flocke SA, Zyzanski SJ, Stange KC. Continuity of primary care: to whom does it matter and when? *Ann Fam Med.* Sep-Oct 2003;1(3):149-155.

4. Infante FA, Proudfoot JG, Powell Davies G, et al. How people with chronic illnesses view their care in general practice: a qualitative study. *Med J Aust.* Jul 19 2004;181(2):70-73.

5. von Bultzingslowen I, Eliasson G, Sarvimaki A, Mattsson B, Hjortdahl P. Patients' views on interpersonal continuity in primary care: a sense of security based on four core foundations. *Fam Pract.* Apr 2006;23(2):210-219.

6. Guthrie B, Wyke S. Personal continuity and access in UK general practice: a qualitative study of general practitioners' and patients' perceptions of when and how they matter. *BMC Fam Pract.* 2006;7:11.

7. Mainous AG, 3rd, Goodwin MA, Stange KC. Patient-physician shared experiences and value patients place on continuity of care. *Ann Fam Med.* Sep-Oct 2004;2(5):452-454.

8. Sturmberg J. Continuity of care: towards a definition based on experiences of practising GPs. *Fam Pract.* Feb 2000;17(1):16-20.

9. Murphy AW. Opening Pandora's box: patients' attitudes towards trainees. Dublin General Practice Vocational Training Scheme Third Year Group 1991-1992. *Fam Pract.* Sep 1995;12(3):318-323.

10. Baker R, Mainous AG, 3rd, Gray DP, Love MM. Exploration of the relationship between continuity, trust in regular doctors and patient satisfaction with consultations with family doctors. *Scand J Prim Health Care.* Mar 2003;21(1):27-32.

11. Allen H, Bahrami J. Patients' attitude towards trainees. *J R Coll Gen Pract.* Nov 1981;31(232):680-682.

12. Spike N, Britt H. *The clinical activities of VMA Registrars in each stage of training. Final report to Victoria Metropolitan Alliance*: Monash University, University of Sydney;2005.

13. Britt H, Miller G, Charles J, et al. *General practice activity in Australia 2006-07. General practice series no. 21. Cat. no. GEP 21.* Canberra: AIHW;2008.

14. Crabtree BF, Miller WL. A qualitative approach to primary care research: the long interview. *Fam Med.* Feb 1991;23(2):145-151.

15. Crabtree B, Miller W. Primary care research: a template approach to text analysis. In: Crabtree B, Miller W, eds. *Doing qualitative research*: Sage Publications; 1992:93-103.

16. Huston P, Rowan M. Qualitative studies. Their role in medical research. *Can Fam Physician.* Nov 1998;44:2453-2458.

17. Saultz JW, Albedaiwi W. Interpersonal continuity of care and patient satisfaction: a critical review. *Ann Fam Med.* Sep-Oct 2004;2(5):445-451.

18. Worrall G, Knight J. Continuity of care for older patients in family practice: how important is it? *Can Fam Physician.* Jun 2006;52:754-755.

19. Martin CM, Peterson C, Robinson R, Sturmberg JP. Care for chronic illness in Australian general practice - focus groups of chronic disease self-help groups over 10 years: implications for chronic care systems reforms. *Asia Pac Fam Med.* 2009;8(1):1.

20. Brown JB, Dickie I, Brown L, Biehn J. Long-term attendance at a family practice teaching unit. Qualitative study of patients' views. *Can Fam Physician.* May 1997;43:901-906.

21. Harris MF, Zwar NA. Care of patients with chronic disease: the challenge for general practice. *Med J Aust.* Jul 16 2007;187(2):104-107.

22. O'Malley PG, Omori DM, Landry FJ, Jackson J, Kroenke K. A prospective study to assess the effect of ambulatory teaching on patient satisfaction. *Acad Med.* Nov 1997;72(11):1015-1017.

23. Larsen K, Perkins D. Training doctors in general practices: a review of the literature. *Aust J Rural Health.* Oct 2006;14(5):173-177.

24. Salisbury K, Farmer EA, Vnuk A. Patients' views on the training of medical students in Australian general practice settings. *Aust Fam Physician.* Apr 2004;33(4):281-283.

25. Britten N, Jones R, Murphy E, Stacy R. Qualitative research methods in general practice and primary care. *Fam Pract.* Mar 1995;12(1):104-114.

Chapter 4: General practice registrars: attitudes of older patients

A version of this chapter was published as:

Bonney A, Jones SC, Phillipson L, Iverson D. General practice registrars - attitudes of older patients. *Aust Fam Physician* 2010;39(6):419-24.

Introduction

The ageing population has brought with it a well described increase in general practice (GP) activity in the care of older patients and chronic medical problems.[1] GP training practices will need to ensure adequate training for registrars in the management of the elderly and chronically ill as these patients will represent a significant proportion of the future GP's caseload.[2] However, GP registrar (GPR) contact with these patients may be hampered by the preference of older patients,[3, 4] and those with chronic problems,[4, 5] for personal continuity in their general practice care. This preference may contribute to the lower consultation rate of older and chronically ill patients with GPRs in Australia.[2] The literature concerning patients' attitudes to GPRs is limited;[6] however a single practice survey in the UK in 1981[7] and a study from Ireland in 1995[8] each indicated that patients were less willing to have GPRs manage long-standing problems, with more negative attitudes noted among patients aged over 40.[8] A qualitative study involving older Australians had demonstrated ambivalent and nuanced attitudes to consulting GPRs, with patients balancing requirements for access and continuity according to their presenting problem.[9] This study aimed at exploring and quantifying those findings in an Australian context, with the goal of informing patient-centred models of interaction to meet the needs of both older-patient and GPRs.

Methods

Survey instrument

Development of the survey instrument was informed by the results of a literature review[6] and a qualitative study.[9] The instrument consisted of 11 categorical items addressing demographics, health and GP service use; four open response items; a self-assessed health rating score; 24 individual attitude items; and a six-part chronic/complex care attitude item. The attitude items explored patients' responses across the themes of continuity of care, access, trust, openness and communication using five-point Likert-scales. The qualitative study had identified that patients were unfamiliar with the term 'registrar'. Thus, as successfully employed previously,[8] the term 'new doctor' was used with an explanatory note for respondents.

Recruitment and sampling

Approval from the Human Research Ethics Committee of the University of Wollongong was obtained. The public website of a GP training provider in regional Australia was accessed and the 87 listed training practices were stratified into 'rural' (n=41) or 'general' (n=46) training streams. Practices were randomly selected within each stream and invited to participate until five practices from each group consented to involvement.

Practice personnel were instructed to offer an information sheet and the questionnaire to 50 sequential patients aged 60 and over, post-consultation. Distribution was undertaken between December 2008 and February 2009. The respondents returned completed questionnaires by mail to the university.

Data analysis

The distributions of the data from the five-point Likert-scale items were assessed for normality using the Kolmogorov-Smirnov test. As none of these items returned data with a normal distribution, the non-parametric tests chi-square, Friedman's test, Spearman's rho (two-tailed) and backward binary logistic regression were used for analysis. The sample size, combined with the skewed distribution of responses, resulted in some items displaying very low frequencies (i.e. < five) in some categories in the original five-category format. These frequencies were below the acceptable threshold for chi-square analysis.[10] Hence to achieve adequate frequencies for analysis, responses to the Likert-scale items were collapsed into three categories.[10] Scores '1' and '2' were considered as representing a negative attitude, '3' a neutral attitude and '4' and '5' a positive attitude to the statements provided. Data were tabulated in this format. Likert-scale variables were collapsed into two categories to undertake the binary regression such that with the 'neutral' response favoured the null hypothesis. The exception was the 'high satisfaction' variable, where respondents who scored 5 for satisfaction were compared with those who scored 1-4. The initial five-category format was retained when assessing correlations. Age/sex groups from this study and the BEACH[11] data for 65-74 years and 75 and over groups were compared using chi square analysis to assess how closely the sample resembled the BEACH sample and inform comment on the generalisability of the results. The internal reliability of the item scales was assessed using Cronbach's alpha. The data were analysed using SPSS version 15.

Results

Internal reliability of the survey instrument

Internal reliability was shown to be acceptable for the 24 five-point Likert-scale items 9-32 (alpha=.72) and the GPR chronic/complex care item 33 (alpha=.83).[12]

Sample Description

Of the 21 practices approached, eight were excluded due to not having had a registrar in the previous three months, and three declined to participate. Surveys were returned from all 10 participating practices with response rates from individual practices ranging from 14% (n=7) to 74% (n=37); 47% overall (n=233). The age range of respondents was 60 to 92 years. The age/sex distribution of the sample was not significantly different from matched groups from the BEACH[11] data (p=0.077). The majority of respondents (n=158, 68.7%) reported having at least one chronic or complex medical problem. Characteristics of the sample are summarised in Table 1.

Table1: Sample characteristics

	Responses (N)	**Responses (%)**
Participants' practice type		
General path	111	47.6%
Rural path	122	52.4%
Participants' age		
60-74 years	147	63.6%
75 years and over	184	36.4%
Participants' gender		
Male	89	38.2%
Female	144	61.8%
Participants' time at practice		
10 years or less	111	47.8%
More than 10 years	121	51.9%
Time with regular GP		
10 years or less	135	59.0%
More than 10 years	94	41.0%
Contact with GPRs		
Has not seen or unsure has seen GPR	96	41.4%
Has seen GPR	136	58.4%
Satisfaction with GPR		
Rating 1-4	82	60.3%
Rating 5 (Very satisfied)	54	39.7%

Percentages expressed are of valid responses for a given item, not for the entire sample.

Participants' responses

A majority (n=193, 83.9%) of respondents stated they would be happy to see a GPR for a minor problem. However, most felt it required time to develop trust (n=153, 66.8%) and a good relationship (n=184, 80.3%) with a new doctor. Almost all wanted reassurance that their ongoing contact with their regular doctor would be maintained if they saw a GPR (n=221, 96.1%). Respondents (n=177, 77.0%) felt more confident in seeing different doctors in the practice knowing their medical record was readily available. Two-thirds stated they would only be willing to see a new doctor if they knew that doctor worked closely with their regular doctor (n=152, 66.1%). A similar proportion wanted to know the qualifications and experience of GPRs (n=145, 63%) and the length of time a GPR will be staying in the practice (n=152, 65.8%); most did not recall having received this information (n=203; 88.6%). The respondents were asked to rate their levels of comfort in each of a series of scenarios of increasing practice support to the GPR for chronic/complex management. One quarter (n=55, 24.2%) were comfortable having a GPR manage a long-term or complex problem independently. This increased to 59.4% (n=133) if the patient's regular GP provided telephone support. The proportion rose to three-quarters (n=163, 73.1%) feeling comfortable if their regular doctor was called in to check on management with the GPR and 87.3% (n=199) if they saw their usual GP and the GPR together for chronic/complex care (Friedman's test $p<0.001$). Patients' responses to all attitude items are presented in Table 2. Figure 1 illustrates the change in responses to GPR chronic/complex management with increasing levels of practice support.

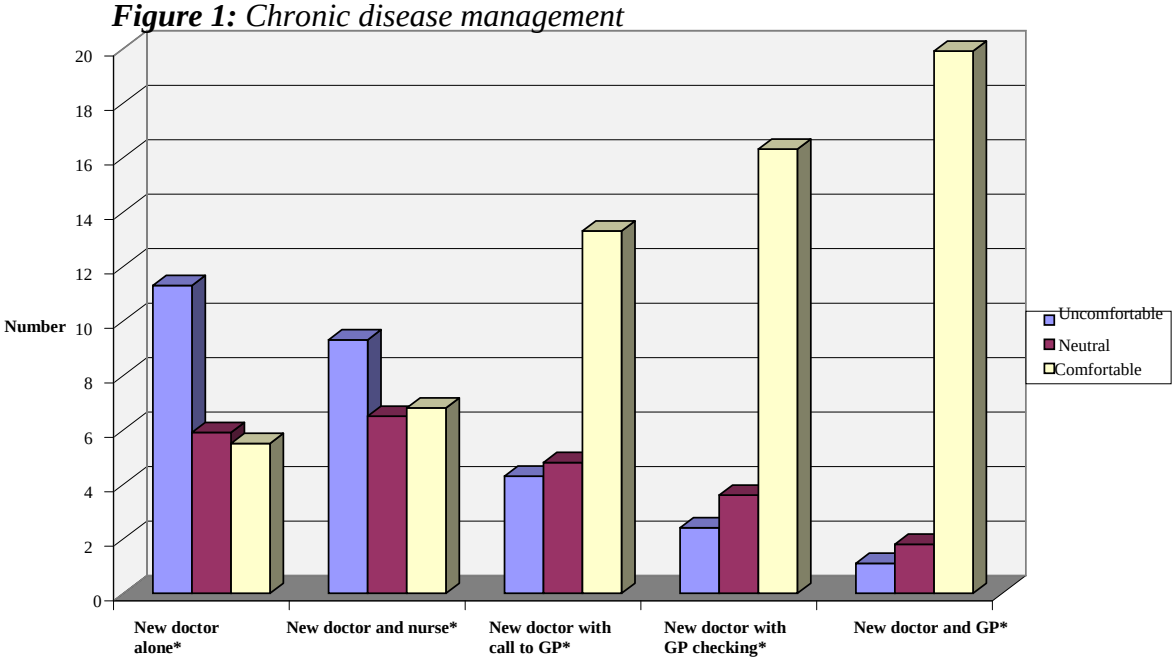
Table 2: Participants' responses

	Unsatisfied	**Neutral**	**Satisfied**
9. How satisfied have you generally been with the medical care you have received from the new doctors in your surgery?	5 (3.7%)	30 (22.1%)	101 (74.3%)
	Disagree	**Neutral**	**Agree**
10. I am happy to see a new doctor for a minor medical complaint, or simple request like a repeat prescription	12 5.2%	25 (10.9%)	193 (83.9%)
11. It is important to me to have a regular doctor who knows me and knows my medical history well.	3 (1.3%)	12 (5.2%)	216 (93.5%)
12. Most of the time it is more important for me to see any doctor who is available rather than waiting to see the doctor of my choice	120 (52.9%)	48 (21.1%)	59 (26%)
13. I prefer to see my regular doctor for the management of all my medical conditions	10 (4.3%)	16 (6.9%)	205 (88.7%)
14. In seeing a new doctor, it would take time to build trust	23 (10.0%)	53 (23.1%)	153 (66.8%)
15. I am uncertain how well a new doctor would be able to help me with my problems	45 (19.6%)	80 (34.8%)	105 (45.7%)
16. I would not feel comfortable talking with one of the new doctors about a sensitive problem	86 (37.1%)	46 (19.8%)	100 (43.1%)
17. If I see a new doctor, I worry that they might not take my concerns seriously	110 (47.8%)	48 (20.9%)	72 (31.3%)
18. I would not find seeing a new doctor reassuring	95 (41.5%)	66 (28.8%)	68 (29.7%)
19. If I saw a new doctor for a medical problem, I would like to know that my ongoing contact with my regular doctor was not broken	3 (1.3%)	6 (2.6%)	221 (96.1%)
20. It would be good to have information available regarding the experience and qualifications of the new doctors	25 (10.9%)	60 (26.1%)	145 (63.0%)
21. It would be good to have information regarding what period of time a new doctor will be working at my surgery (e.g. 6 months, 12 months, indefinitely)	25 (10.8%)	54 (23.4%)	152 (65.8%)
22. I think my regular doctor is happy for me to see the new doctors for any of my medical problems	38 (17.4%)	73 (33.3%)	108 (49.3%)
23. Supporting the new doctors who come to my medical practice might encourage more doctors to stay in the area.	8 (3.4%)	45 (19.4%)	179 (77.2%)
24. I expect that all of the doctors at the surgery I attend have good medical knowledge and skills	3 (1.3%)	11 (4.8%)	215 (93.9%)
25. The relationship I have with my usual doctor is something I would value continuing into the future	0 (0.0%)	5 (2.2%)	227 (97.8%)
26. A new doctor would not have the full picture of my medical history and background	51 (22.3%)	73 (31.9%)	105 (45.9%)
27. I am only willing to see a new doctor if I knew the doctor worked closely with my regular doctor	36 (15.7%)	42 (18.3%)	152 (66.1%)
28. I don't like having to go through my medical history all over again with a new doctor	53 (23.1%)	60 (26.2%)	116 (50.7%)
29. Knowing that my medical record is readily available helps me feel confident in seeing different doctors in the practice	13 (5.7%)	40 (17.4%)	177 (77.0%)
30. I have found the new doctors easy to communicate with	21 (11.6%)	65 (35.9%)	95 (52.5%)
31. If my usual doctor transferred my care to one the new doctors, I'd feel a bit abandoned	33 (14.5%)	40 (17.5%)	155 (68.0%)
32. It takes time to develop a good relationship with a new doctor	13 (5.7%)	32 (14.0%)	184 (80.3%)

How comfortable would you feel having a long-term or complex medical problem, for example diabetes or a heart problem, managed in the following situations?	Not comfortable	Neutral	Comfortable
33a. A new doctor alone	113 (49.8%)	59 (26.0%)	55 (24.2%)*
33b. A new doctor and the practice nurse	93 (41.2%)	65 (28.8%)	68 (30.1%)*
33c. A new doctor with a phone call to my regular doctor to double-check the management	43 (19.2%)	48 (21.4%)	133 (59.4%)*
33d. A new doctor who called in my regular doctor to double-check the management	24 (10.8%)	36 (16.1%)	163 (73.1%)*
33e. A new doctor and my regular doctor together	11 (4.8%)	18 (7.9%)	199 (87.3%)*
33f. My regular doctor alone	1 (0.4%)	7 (3.0%)	219 (96.5%)*

*Differences between groups p<0.001 (Friedman's test)

Figure 1: *Chronic disease management*



*Differences between groups p<0.001 (Friedman's test)

Three end-points were chosen for further investigation: having seen a GPR; satisfaction in seeing a GPR; and comfort in having a chronic/complex problem managed by a GPR alone. Table 3 presents significant results of chi square analyses and correlations using Spearman's rho (two-tailed) with these end-points and selected variables.

Table 3: Associations and correlations

End-point for investigation	**Association (Chi-square analysis)**	**Correlation (Spearman's rho)**
Having seen a GPR		
Attending a rural practice	p=.024	-
Attending the same practice for more than 10 years	p=.001	-
Attending the same GP for more than 10 years	p=.009	-
Agreeing with "I think my regular doctor is happy for me to see the new doctors for any of my medical problems"	p<.001	-
Satisfaction in seeing a GPR		
"I think my regular doctor is happy for me to see the new doctors for any of my medical problems"	-	.344 (p<0.001)
"I expect that all of the doctors at the surgery I attend have good medical knowledge and skills"	-	.411 (p<0.001)
"Knowing that my medical record is readily available helps me feel confident in seeing different doctors in the practice"	-	.416 (p<0.001)
"I have found the new doctors easy to communicate with"	-	.527 (p<0.001)
Comfort in having a chronic/complex medical problem managed by a GPR alone		
Having seen a GPR	p<001	
"I think my regular doctor is happy for me to see the new doctors for any of my medical problems"	p<.001	.303 (p<.001)
"I don't like having to go through my medical history all over again with a new doctor"		-.338 (p<.001)
"Most of the time it is more important for me to see any doctor who is available rather than waiting to see the doctor of my choice"	-	.338 (p<.001)
"I would not find seeing a new doctor reassuring"	-	-.332 (p<.001)
"If my usual doctor transferred my care to one the new doctors, I'd feel a bit abandoned"	-	-.388 (p<.001)
"It takes time to develop a good relationship with a new doctor"		-.411 (p<.001)

Backward step-wise logistic regression models were then tested for each end-point, using the variables listed below each end-point in Table 3. The variables that were retained after regression are presented in Table 4.

Table 4: Variables retained after logistic regression

	Odds Ratio	**Lower 95% C.I.**	**Upper 95% C.I.**	**Sig.**
Variables predicting a patient having seen a GPR				
Attending a rural practice	1.88	1.03	3.45	p=.04
Attending the same practice for more than 10 years	2.70	1.48	4.96	p=.001
Agreeing with "I think my regular doctor is happy for me to see the new doctors for any of my medical problems"	3.99	2.17	7.33	p<.001
Variables predicting a patient reporting high satisfaction in seeing a GPR				
Agreeing with "I have found the new doctors easy to communicate with"	3.69	1.54	8.84	p=.003
Agreeing with "Knowing that my medical record is readily available helps me feel confident in seeing different doctors in the practice"	6.57	1.41	30.58	p=.016
Variables predicting patients feeling comfortable in having a chronic/complex medical problem managed by a GPR alone				
Disagreeing with "I would not find seeing a new doctor reassuring"	2.20	1.05	4.58	p=.036
Agreeing with "Most of the time it is more important for me to see any doctor who is available rather than waiting to see the doctor of my choice"	2.42	1.14	5.15	p=.022
Disagreeing with "If my usual doctor transferred my care to one the new doctors, I'd feel a bit abandoned"	3.04	1.23	7.52	p=.016
Disagreeing with "It takes time to develop a good relationship with a new doctor"	13.04	2.57	66.28	p=.002

For the first end-point, patients were more likely to have seen a GPR when they believed their usual GP was happy for them to see a GPR (OR 3.99; 95% CI 2.17-7.33; $p < .001$). For the second end-point, patients more likely to express high satisfaction in GPR consultations if they felt the GPR was easy to communicate with (OR 3.69; 95% CI 1.54-8.84; p=.003) or if they felt confident in seeing different doctors knowing the medical record was readily available (OR 6.57; 95% CI 1.41-30.58; p=.016). For the final end-point, patients were more likely to feel comfortable with independent GPR

chronic/complex management if they would not feel 'abandoned' if their care was transferred to a GPR (OR 3.04; 95% CI 1.23-7.52; p=0.16).

Discussion

Strengths and limitations of the study

This is the first study that the authors are aware of that quantifies Australian patients' responses to GPRs. The results are consistent with previous Australian qualitative work,[9] the data available from overseas,[7, 8, 13] and research concerning continuity of care.[4, 5, 14-18] Furthermore, this current study adds to the literature by identifying factors that may improve older patients' acceptance of registrars. Of special interest, this study quantifies a widespread reluctance amongst older patients to having registrars manage chronic/complex conditions, which could be significantly improved by maintaining a relational link with their regular GP. This study has limitations. The modest sample size, variable response rate between practices and the inability to track non-responders potentially detract from the generalisability of the results. However, strengthening the findings, the sample did not significantly differ from the patient population demonstrated in the BEACH study,[11] and logistic regression has been shown to be robust in complex sampling techniques, such as the cluster sampling used in this study.[19]

Implications for training practices and future research

Adult learning theory indicates that learners are motivated by the need to solve real-life, practical problems.[20] Older patients are likely to present their straightforward complaints to registrars, keeping their complex or chronic problems for their usual doctor. This has obvious implications for registrar learning. Addressing the key findings of this study (summarised in Box 1) could positively influence older patients'

interactions with registrars. Developing models of 'shared-continuity' for chronic/complex care between older patients, GPRs and GPs has the potential to ensure patient satisfaction, high quality care and valuable learning opportunities for GPRs.

Box 1: *Key findings of this study*

The older patients in this sample wanted:

- Information regarding the length of stay, experience and qualifications of GPRs
- To know GPRs worked closely with their regular doctors
- Continuity of care preserved with their usual doctor if they consulted a GPR

They were more likely to see a GPR:

- If they thought their regular GP was happy for them to do so

They were more likely to be highly satisfied:

- If they felt confident knowing that their record was readily available
- If the GPR communicated well

They were more comfortable with GPR chronic / complex management:

- With simple contact with their usual GP at the time of the consultation

These results warrant further investigation. The study requires confirmation with a larger sample from a more diverse geographic distribution. As a cross-sectional study, it is unable to demonstrate causative relationships; hence further research is indicated to trial the recommendations to determine if improved patient acceptance results. Evaluation would also be required to assess the outcomes clinically for patients and educationally for GPRs.[9] The acceptability to training practices of proposed strategies, including cost implications, also needs evaluating.

References:

1. Britt H, Miller GC, Charles J, et al. *General practice activity in Australia 1999-00 to 2008-09: 10 year data tables. General practice series no. 26. Cat. no. GEP 26.* Canberra: AIHW;2009.

2. Spike N, Britt H. The clinical activities of VMA Registrars in each stage of training. Final report to Victoria Metropolitan Alliance. Melbourne: Monash University; 2006.

3. Kearley KE, Freeman GK, Heath A. An exploration of the value of the personal doctor-patient relationship in general practice. *Br J Gen Pract.* Sep 2001;51(470):712-718.

4. Nutting PA, Goodwin MA, Flocke SA, Zyzanski SJ, Stange KC. Continuity of primary care: to whom does it matter and when? *Ann Fam Med.* Sep-Oct 2003;1(3):149-155.

5. von Bultzingslowen I, Eliasson G, Sarvimaki A, Mattsson B, Hjortdahl P. Patients' views on interpersonal continuity in primary care: a sense of security based on four core foundations. *Fam Pract.* Apr 2006;23(2):210-219.

6. Bonney A, Phillipson L, Reis S, Jones SC, Iverson D. Patients' attitudes to general practice registrars: a review of the literature. *Educ Prim Care.* Sep 2009;20(5):371-378.

7. Allen H, Bahrami J. Patients' attitude towards trainees. *J R Coll Gen Pract.* Nov 1981;31(232):680-682.

8. Murphy AW. Opening Pandora's box: patients' attitudes towards trainees. Dublin General Practice Vocational Training Scheme Third Year Group 1991-1992. *Fam Pract.* Sep 1995;12(3):318-323.

9. Bonney A, Phillipson L, Jones SC, Iverson D. Older patients' attitudes to general practice registrars - A qualitative study. *Aust Fam Physician.* Nov 2009;38(11):927-931.

10. Munro BH. *Statistical methods for health care research*. 5th ed. Philadelphia: Lippincott, Williams and Wilkins; 2005.

11. Britt H, Miller G, Charles J, et al. *General practice activity in Australia 2006-07. General practice series no. 21. Cat. no. GEP 21.* Canberra: AIHW;2008.

12. Bland JM, Altman DG. Cronbach's alpha. *BMJ.* Feb 22 1997;314(7080):572.

13. Reichgott MJ, Schwartz JS. Acceptance by private patients of resident involvement in their outpatient care. *J Med Educ.* Sep 1983;58(9):703-709.

14. Guthrie B, Wyke S. Personal continuity and access in UK general practice: a qualitative study of general practitioners' and patients' perceptions of when and how they matter. *BMC Fam Pract.* 2006;7:11.

15. Infante FA, Proudfoot JG, Powell Davies G, et al. How people with chronic illnesses view their care in general practice: a qualitative study. *Med J Aust.* Jul 19 2004;181(2):70-73.

16. Baker R, Mainous AG, 3rd, Gray DP, Love MM. Exploration of the relationship between continuity, trust in regular doctors and patient satisfaction with

consultations with family doctors. *Scand J Prim Health Care.* Mar 2003;21(1):27-32.

17. Saultz JW, Albedaiwi W. Interpersonal continuity of care and patient satisfaction: a critical review. *Ann Fam Med.* Sep-Oct 2004;2(5):445-451.

18. Worrall G, Knight J. Continuity of care for older patients in family practice: how important is it? *Can Fam Physician.* Jun 2006;52:754-755.

19. Lemeshow S, Letenneur L, Dartigues JF, Lafont S, Orgogozo JM, Commenges D. Illustration of analysis taking into account complex survey considerations: the association between wine consumption and dementia in the PAQUID study. Personnes Ages Quid. *Am J Epidemiol.* Aug 1 1998;148(3):298-306.

20. Knowles MS, Holton EF, Swanson RS. *The Adult Learner*. 5th ed. Houston: Gulf Publishing company; 1998.

Chapter 5: Measuring older patients' attitudes to general practice registrars: Exploratory factor analysis of a survey instrument

A version of this chapter was published as:

Bonney A, Magee C, Caputi P. Measuring older patients' attitudes to general practice registrars: Exploratory factor analysis of a survey instrument. *Focus on Health Professional Education: A Multi-disciplinary Journal. 2011;12(3):74-85*.

Introduction

Vocational training for general practice in Australia follows an apprenticeship-like model: trainees, referred to as general practice registrars (GPRs), gain experience by managing patients in community-based practices under the supervision of practising general practitioners (GPs).[1] With the ageing of the Australian population,[2] future GPs will be managing an increasing caseload of older patients, with the concomitant responsibility for chronic and complex care management that older patients bring.[3] Even at present, over 40% of all Australian GP consultations address a chronic problem, with this figure having steadily risen in recent years.[4] Therefore, adequate training for the management of the elderly and chronically ill is assuming increasing importance.[5] Whilst it has been recognised in many countries that there is a need for significant structural reform for general practice to adapt to these and other changes,[6-10] it is also evident that models of GP training and registrar learning requirements will need to adapt.[11]

Adult learning theory indicates that adults are motivated to learn by the need to solve important, contextually relevant problems.[12] It is concerning then that Australian GPRs

are involved in the management of significantly fewer older and chronically ill patients than established GPs, as this has clear consequences in reducing learning opportunities.[5] In addition, recent Australian qualitative research has indicated that older patients have different expectations of their doctor-patient relationship with GPRs, as compared with their usual GPs, resulting in a tendency to more superficial, convenience-based consultations with GPRs.[13] Therefore providing experience for GPRs in the management of older patients is hampered by both reduced opportunities and the dynamics of the consultation. To address these concerns, barriers to older patient-GPR interaction need to be identified, so that training models can be developed that are acceptable to patients and enable adequate experience for GPRs.

Unfortunately, there has only been a limited amount of research investigating how patients respond to GPRs and a paucity of research from Australia.[14] For example, a review of the literature identified that from 1980 to March 2009, only 15 papers had been published that examined patients' attitudes to GPRs.[14] From the limited data available from two of these studies, there is evidence that increasing age is associated with less positive attitudes towards GPRs[15] and patients are less willing to have chronic conditions managed by GPRs.[16] However, no published quantitative studies have focused on older patients. In addition, previous studies have been limited by inconsistencies in the measures used to assess patients' attitudes or satisfaction with GPRs. Neither of the two studies which touched on patients' attitudes to GPR chronic disease involvement used validated instruments. Of other work regarding attitudes to GPRs, four studies utilised some pre-existing and validated questionnaires, but these assessed a variety of constructs including patient trust,[17] patient satisfaction[18, 19] and social support.[20] One study validated a pre-existing patient satisfaction questionnaire in

the context of family practice training centres,[18] whilst another validated their own survey instrument, which had been developed for a very specific population (i.e. patient satisfaction in gynaecologic care provided by residents at a university medical centre).[21]

Utilising existing generic patient satisfaction questionnaires in this context is problematic, as previous studies have indicated that there is an overall reported acceptable satisfaction with GPR consultations, with a co-existing reluctance of patients, especially older ones, to having GPRs manage their complex/chronic problems.[14] Hence it is unlikely that existing patient satisfaction questionnaires can accurately assess the factors involved in older-patients' decisions regarding consulting a GPR, as they have not been designed or validated for use in that context. Therefore, there is a need for a validated instrument that assesses patients' attitudes to GPRs and is suitable for use in older patient populations.

As part of a project to address these concerns, one of the authors undertook a multi-centre cross-sectional survey of older patients' attitudes to GPRs in Australia. The survey examined patients' attitudes to GPRs across the themes of continuity of care, access, trust, openness and communication. The purpose of this paper is to report on an investigation into some of the psychometric properties of the survey instrument and assess its potential effectiveness in obtaining valid data to assist GP training adapt to its changing environment.

Methods

Materials

The survey was developed on the basis of a literature review[14] and a qualitative study.[13] The instrument included 11 categorical, four open- response and 30 five-point Likert-

scale attitude items (1=most negative; 5=most positive). Only the latter were considered in this study. These items were designed to explore patients' attitudes to GPRs across the themes identified in previous research: continuity of care, access, trust, openness and communication.[13] Previous research had also identified that patients were unfamiliar with the term 'registrar'.[13] Thus, the term 'new doctor' was used in the survey instrument, with an explanatory note for respondents. This term had been used successfully in a previous study of patients' attitudes to GPRs.[15]

Procedure

Approval from the Human Research Ethics Committee of the University of Wollongong was obtained before initiation of the study. A two stage sampling process was employed. The public website of a GP training provider in regional Australia was accessed. The 87 listed training practices were stratified according to their designation as belonging to a 'rural' (n=41) or 'general' (n=46) training stream. Practices were then randomly selected within each stream and invited to participate. This process continued until five practices from each group consented to involvement. To assist patients' recall of GPRs, practices were excluded if they had not had a registrar within the previous three months.

Participating practice personnel were instructed to offer to 50 sequential patients aged 60 and over, post consultation, an information sheet and the questionnaire with a return postage-paid envelope. The respondents returned completed questionnaires by mail directly to the university.

Statistical Analyses

The data were checked for missing values or data entry errors. Participants with missing data were excluded from the study to minimise problems with the identification of factors. Two items were excluded as they were only relevant for respondents who had consulted a registrar. A further group of six items was excluded that referred to patient choices in a hypothetical chronic disease management scenario. The 22 items thus subjected to analysis are listed in Table 1.

Table 1: Items included in the factor analysis

Item No.	Item
10.	I am happy to see a new doctor for a minor medical complaint, or simple request like a repeat prescription
11.	It is important to me to have a regular doctor who knows me and knows my medical history well.
12.	Most of the time it is more important for me to see any doctor who is available rather than waiting to see the doctor of my choice
13.	I prefer to see my regular doctor for the management of all my medical conditions
14.	In seeing a new doctor, it would take time to build trust
15.	I am uncertain how well a new doctor would be able to help me with my problems
16.	I would not feel comfortable talking with one of the new doctors about a sensitive problem
17.	If I see a new doctor, I worry that they might not take my concerns seriously
18.	I would not find seeing a new doctor reassuring
19.	If I saw a new doctor for a medical problem, I would like to know that my ongoing contact with my regular doctor was not broken
20.	It would be good to have information available regarding the experience and qualifications of the new doctors
21.	It would be good to have information regarding what period of time a new doctor will be working at my surgery (e.g. 6 months, 12 months, indefinitely)
22.	I think my regular doctor is happy for me to see the new doctors for any of my medical problems
23.	Supporting the new doctors who come to my medical practice might encourage more doctors to stay in the area.
24.	I expect that all of the doctors at the surgery I attend have good medical knowledge and skills
25.	The relationship I have with my usual doctor is something I would value continuing into the future
26.	A new doctor would not have the full picture of my medical history and background
27.	I am only willing to see a new doctor if I knew the doctor worked closely with my regular doctor
28.	I don’t like having to go through my medical history all over again with a new doctor
29.	Knowing that my medical record is readily available helps me feel confident in seeing different doctors in the practice
31.	If my usual doctor transferred my care to one the new doctors, I'd feel a bit abandoned
32.	It takes time to develop a good relationship with a new doctor

In the next stage of the analysis, the psychometric properties of the questionnaire were examined. This involved calculating the inter-item correlations, item-total correlations and internal consistency (i.e. Cronbach's α). Any items that had low item-total correlations, inter-item correlations and/or substantially lowered the internal consistency were inspected further and if appropriate were excluded. Velicer's minimum average partial (MAP) test was used to determine the optimal number of factors to extract, as it is considered more accurate than traditional rule-of-thumb approaches such as using Eigen values.[22] On theoretical grounds it was expected that the factors may be related; therefore factor analysis was performed using Principal Component Analysis with Direct Oblimin Rotation to identify the factor structure and loadings.

Results

Descriptive Statistics of the Sample

A total of 233 questionnaires were received and inspection of the data indicated that 37 questionnaires (15.9%) had missing values in at least one of the Likert scale attitude items in the questionnaire. These questionnaires were excluded from the analyses, leaving a final sample size of 196 (response rate of 39.2%). The average age of the sample was 71.7 years (range 60 to 92 years); other demographic characteristics of the study sample are shown in Table 2 and indicate that 120 (61.2%) of the sample were female. Rural respondents comprised 52% of this sample (N=102) and non-rural respondents 48% (N=94). Over half of the respondents stated they had seen a GPR previously (n=120, 61.5%). The majority of respondents (n=139, 70.9%) reported having at least one chronic or complex medical problem.

Table 2: Characteristics of the study sample

Characteristic	***n***	***%***
Gender		
Male	76	38.8
Female	120	61.2
Age		
60 – 64 years	30	15.3
65 – 69 years	55	28.1
70 – 74 years	45	23.0
75 – 79 years	30	15.3
80 years and over	34	17.3
Not answered	2	1.0
Country of Birth		
Australia	140	78.6
Other	56	21.4
Employment status		
Currently employed	27	13.8
Not employed	169	86.2
Length of time at practice		
< 1 year	10	5.1
1 – 4 years	40	20.4
5 – 10 years	47	24.0
> 10 years	98	50.0
Not answered	1	0.5
Length of time with doctor		
< 1 year or no regular doctor	15	7.7
1 – 4 years	47	24.0
5 – 10 years	58	29.6
> 10 years	72	36.7
Not answered	4	2.0

Psychometric Properties of the Questionnaire

Most inter-item correlation coefficients were between .20 and .50, with none exceeding .71; this suggests that none of the items overlapped considerably. Most of the item-total correlations were also appropriate and ranged from .20 to .57. The Cronbach's α for the scale was .76, which indicates an appropriate level of internal consistency.[23] On the basis of these results, all of the 22 items were included in the subsequent factor analysis. Velicer's MAP test identified a three factor model as the optimal factor structure. As a result, factor analysis was performed to extract three factors, which are shown in Table 3.

Table 3: Factor structure and loadings

Item No.	**Factor**		
	1	2	3
17.	**.815**		
18.	**.775**		
15.	**.745**		
16.	**.725**		
26.	**.632**		
20.	**.545**		
28.	**.544**		
14.	**.535**		
27.	**.498**		
21.	**.490**		
23.		**.671**	
12.		**.665**	.320
22.		**.661**	
29.		**.656**	
24.		**.552**	
10.		**.513**	
25.			**-.808**
13.			**-.540**
19.			**-.534**
11.			**-.505**
31.			**-.407**
32.	.345		-.387
Variance explained (%)	26.25%	11.44%	7.54%

Bold values indicate that the component has adequate factor loadings on the respective factor.

Factor 1 accounted for 26.2% of the variance. It comprised the following items (in order of decreasing factor loading): 17, 18, 15, 16, 26, 20, 28, 14, 27 and 21. These items related to: the respondent's concerns about not being taken seriously by a new doctor; not finding seeing a new doctor reassuring; being uncertain as to whether a new doctor would be able to help their problems; feeling uncomfortable discussing sensitive issues with a new doctor; feeling a new doctor would not have their full history; wanting to know the qualifications of a new doctor; not wanting to see a new doctor as they had to go through their history again; feeling it would take time to build trust with a new doctor; only wanting to see a new doctor if they worked closely with their usual doctor; and wanting information on the length of time a new doctor was staying in the practice. As a result this factor was labelled 'interpersonal trust'.[24] The factors loadings for all items were acceptable (.815 to .490) and the factor had an appropriate level of internal consistency (Cronbach's α=.850).

The second factor accounted for 11.4% of the variance and consisted of items 23, 12, 22, 29, 24 and 10. These items assessed: if respondents felt that in seeing a registrar the doctor might be encouraged to stay in the area; whether respondents agreed it was more important for them to see any available doctor; whether respondents thought their regular doctor was happy for them to see a registrar for any medical problem; whether they felt reassured in seeing different doctors by the medical record being readily available; if they expected good skills in all doctors at their surgery; and whether they were happy to see any doctor for a simple complaint. As a result, this factor was labelled 'system trust'.[17, 24] The factor loadings were all acceptable (.671 to .513), and the factor also had an appropriate level of internal consistency (Cronbach's α=.710).

The third factor included accounted for 7.5% of the variance and included items 25, 13, 19, 11, 31 and 32. These items addressed issues relating to: whether respondents felt their relationship with their usual GP was something they valued continuing into the future; whether they only wished to see their regular doctor for all medical problems; if in seeing a new doctor they did not wish their contact with their usual GP to be broken; whether a patient felt it was important to have a regular doctor who knew them and their history well; whether they would feel abandoned if their care was transferred to a new doctor; and if they felt it would take time to develop a good relationship with a new doctor. As a result this factor was labelled 'interpersonal continuity'.[25] The internal reliability of this factor was lower than the other factors, but was still acceptable (Cronbach's α=.656). Most factor loadings were also acceptable (-.808 to -.407), with the exception of item 32 (-.387) which also cross-loaded on Factor 1.

Discussion

The present study involved a preliminary investigation of the psychometric properties of a new survey instrument to assess older patients' attitudes to GPRs in Australia. This provided a number of useful outcomes in the context of the study sample. First; the instrument had acceptable psychometric properties with overall appropriate levels of internal reliability and no indication of redundant items. Second; three distinct factors were identified which were labelled 'interpersonal trust', 'system trust' and 'interpersonal continuity'. These factors were consistent with previous theory and research concerning significant features of the doctor-patient relationship.[17, 24-26] However, the solution differed from the authors' *a priori* coding of the items to themes arising from research specific to GPR consultations,[13] as is discussed below. Table 4 summarises the item groupings before and after the factor analysis.

Table 4: Comparison of hypothesised themes and extracted factors

	Hypothesised themes					After factor analysis	
Item No.	**Continuity**	**Access**	**Openness**	**Trust**	**Communication**		
17.							**Interpersonal trust**
18.							
15.							
16.							
26.							
20.							
28.							
14.							
27.							
21.							
23.							**System trust**
12.							
22.							
29.							
24.							
10.							
25.							**Interpersonal continuity**
13.							
19.							
11.							
31.							
32.							

Interpersonal trust

Whilst there are numerous definitions of trust, the authors have found the definition used by Hall et al to be useful: *'…trust is the optimistic acceptance of a vulnerable situation in which the truster believes the trustee will care for the truster's interests'*.[24] Trust in the context of medical care has been said to contain interpersonal (doctor-patient) and system (institution-patient) components,[17, 27] as well as affective and anticipatory dimensions.[17, 24] The factor labelled 'interpersonal trust' is constituted of items of an anticipatory nature, relating to concerns regarding the personal interaction in (14, 16-18, 21 and 28), or medical efficacy of (15, 20, 26 and 27), a future GPR consultation. This factor consists of the majority of components of the hypothesised 'trust' and 'communication' themes, and two items from the 'continuity' theme (21 and 26). Communication[26] and continuity of care[28] have both been previously noted to have associations with patients' interpersonal trust, which provides a plausible explanation for these items' extraction to this factor.

System trust

The factor labelled 'system trust' contains all of the items of the hypothesised 'access' (10 and 12) and 'openness' (22 and 23) themes, one 'communication' (29) and one 'trust' item (24). It seems likely that when patients express 'openness' to consulting an unknown doctor in training, they are displaying features of 'system trust': a trust in the clinic they attend, or the medical system as a whole.[13, 17, 24] System trust was epitomised by the item 'I expect all the doctors in the practice I attend have good medical skills' (24), considered under the theme of trust prior to the analysis. Patient preference for access over continuity of care (10 and 12) also implies system trust, rather than a requirement for interpersonal trust with a specific doctor. It is likely that the 'communication' item that was extracted - 'ready availability of the medical record'

(29) - also refers to a condition that contributes to patients' trust of their medical care at a system level.

Interpersonal continuity

The final factor, 'interpersonal continuity', consists of the majority of the items from the 'continuity' theme (11, 13, 19, 25 and 31). All of these items referred to 'interpersonal' continuity, i.e., an ongoing personal relationship with the one GP, as opposed to 'informational' or 'longitudinal' continuity.[25] The item initially under the communication theme, 'It takes time to develop a good relationship with a new doctor' (22), cross-loaded on Factor 1. This is not surprising as the item is also likely to encompass aspects of interpersonal trust; however we felt it was more appropriate for it to be included in the interpersonal continuity factor.

Conclusions

In the current environment in Australia of an ageing population, increasing reliance on community-based training of doctors and increased emphasis on consumer engagement,[8] the development of a valid tool to assess older-patients' attitudes to GPRs is timely. The present instrument has a number of advantages over previously used instruments. It has been designed for use by older patients within the specific setting of Australian general practice. Furthermore, it explores patients' attitudes in the anticipation of seeing a registrar, in the context of their relationship with their regular doctor. The results from the use of this instrument may therefore inform the development of appropriately directed strategies to assist older patients' acceptance of GPRs, and avoids the previously noted problems associated with generic satisfaction instruments. This exploratory analysis suggests that the survey instrument has acceptable psychometric properties, including construct validity. The use of MAP to

determine the optimal number of factors provided a solution with appealing face validity, lending support for the wider utilisation of this method.

The themes of patients' attitudes used to develop the instrument were derived from an analysis of interviews in a qualitative study. The factor analysis suggests that the items used to investigate those themes refer to three underlying constructs: interpersonal trust, system trust and interpersonal continuity. The factors relating to trust (especially interpersonal trust) appeared to be the most important accounting for most of the variance, but interpersonal continuity as a factor might still be important. These findings are tentative, given the modest sample size, and verification with a larger sample in differing settings is required. In addition, generally accepted operationalisations of patient trust[27] and continuity of care[25] are still awaited, and hence it is not possible to draw firm conclusions on the appropriateness of the categorisations of the factors. However, the instrument shows strong promise in being effective in providing valid data to assist adaptive change in Australian GP training, and awaits confirmatory analysis after being applied to a larger sample. There is definite scope for investigating the use of derivations of this instrument to explore patients' responses to others undertaking training in community-based healthcare settings, including medical students and trainees in other disciplines. In the midst of significant healthcare reform in Australia, the instruments' focus on trust and interpersonal continuity raise the possibility of investigating adapting the instrument to assess patients' attitudes to multi-disciplinary team care in the community as well.

References:

1. Sturmberg J, Heard S. General practice education in Australia. Current issues. *Aust Fam Physician.* May 2004;33(5):353-355.

2. AIHW. Disability and ageing Australian population patterns and implications: Population ageing in Australia. 2000; http://www.aihw.gov.au/publications/dis/da/da-c02.pdf. Accessed 26th May 2010.

3. AIHW. Incidence and prevalence of chronic diseases. 2008; http://www.aihw.gov.au/cdarf/data_pages/incidence_prevalence/index.cfm. Accessed 26th May 2010.

4. Britt H, Miller GC, Charles J, et al. *General practice activity in Australia 1999-00 to 2008-09: 10 year data tables. General practice series no. 26. Cat. no. GEP 26.* Canberra: AIHW;2009.

5. Spike N, Britt H. The clinical activities of VMA Registrars in each stage of training. Final report to Victoria Metropolitan Alliance. Melbourne: Monash University; 2006.

6. CFPC. Patient-Centred Primary Care in Canada: Bring it on home. 2009; http://www.cfpc.ca/local/files/CME/FMF_2009/news/Bring%20it%20on%20Home%20FINAL%20ENGLISH.pdf. Accessed 17/11/2009.

7. Harris MF, Zwar NA. Care of patients with chronic disease: the challenge for general practice. *Med J Aust.* Jul 16 2007;187(2):104-107.

8. NHHRC. A Healthier future for all Australians - final report of the National Health and Hospitals Reform Commission - June 2009. 2009; http://www.health.gov.au/internet/nhhrc/publishing.nsf/Content/nhhrc-report. Accessed 28.09.2010.

9. Rosenthal TC. The medical home: growing evidence to support a new approach to primary care. *J Am Board Fam Med.* Sep-Oct 2008;21(5):427-440.

10. Soubhi H. Toward an ecosystemic approach to chronic care design and practice in primary care. *Ann Fam Med.* May-Jun 2007;5(3):263-269.

11. Lipman T. The future general practitioner: out of date and running out of time. *Br J Gen Pract.* Sep 2000;50(458):743-746.

12. Knowles MS, Holton EF, Swanson RS. *The Adult Learner*. 5th ed. Houston: Gulf Publishing company; 1998.

13. Bonney A, Phillipson L, Jones SC, Iverson D. Older patients' attitudes to general practice registrars - A qualitative study. *Aust Fam Physician.* Nov 2009;38(11):927-931.

14. Bonney A, Phillipson L, Reis S, Jones SC, Iverson D. Patients' attitudes to general practice registrars: a review of the literature. *Educ Prim Care.* Sep 2009;20(5):371-378.

15. Murphy AW. Opening Pandora's box: patients' attitudes towards trainees. Dublin General Practice Vocational Training Scheme Third Year Group 1991-1992. *Fam Pract.* Sep 1995;12(3):318-323.

16. Allen H, Bahrami J. Patients' attitude towards trainees. *J R Coll Gen Pract.* Nov 1981;31(232):680-682.

17. Bonds DE, Foley KL, Dugan E, Hall MA, Extrom P. An exploration of patients' trust in physicians in training. *J Health Care Poor Underserved.* May 2004;15(2):294-306.

18. Rodney WM, Quigley CB, Werblun MN, Sumbureru D, Shear CL. Satisfaction of continuity patients in a family medicine residency--validation of a measurement tool. *Fam Pract Res J.* Spring 1986;5(3):167-176.

19. Yancy WS, Jr., Macpherson DS, Hanusa BH, et al. Patient satisfaction in resident and attending ambulatory care clinics. *J Gen Intern Med.* Nov 2001;16(11):755-762.

20. Boutin-Foster C, Charlson ME. Problematic resident-patient relationships: the patient' s perspective. *J Gen Intern Med.* Nov 2001;16(11):750-754.

21. Sheets K, Caruthers B, Schwenk T. Patient satisfaction with gynecologic care provided by family practice resident physicians. *Fam Pract Res J.* Dec 1991;11(4):421-428.

22. O'Connor BP. SPSS and SAS programs for determining the number of components using parallel analysis and velicer's MAP test. *Behav Res Methods Instrum Comput.* Aug 2000;32(3):396-402.

23. Bland JM, Altman DG. Cronbach's alpha. *BMJ.* Feb 22 1997;314(7080):572.

24. Hall MA, Dugan E, Zheng B, Mishra AK. Trust in physicians and medical institutions: what is it, can it be measured, and does it matter? *Milbank Q.* 2001;79(4):613-639, v.

25. Saultz JW. Defining and measuring interpersonal continuity of care. *Ann Fam Med.* Sep-Oct 2003;1(3):134-143.

26. Mechanic D. The functions and limitations of trust in the provision of medical care. *J Health Polit Policy Law.* Aug 1998;23(4):661-686.

27. Hall MA, Zheng B, Dugan E, et al. Measuring patients' trust in their primary care providers. *Med Care Res Rev.* Sep 2002;59(3):293-318.

28. Mainous AG, 3rd, Baker R, Love MM, Gray DP, Gill JM. Continuity of care and trust in one's physician: evidence from primary care in the United States and the United Kingdom. *Fam Med.* Jan 2001;33(1):22-27.

Chapter 6: The older patient, the doctor and the trainee: patients' attitudes and implications for models of care

Introduction

Population ageing is a global phenomenon. It is expected that the proportion of the world's population aged 60 years and over will double in the next 50 years, with the proportion of the European population aged over 60 years projected to reach 37% by 2050.[1] This brings with it a significant shift in morbidity patterns, notably an increase in chronic conditions,[2] evident in the trends in the caseloads managed in general practice/family medicine (GP/FM).[3] Among the challenges to providing effective and sustainable health care in this environment are the need to increase capacity in chronic disease management whilst ensuring continuity of care for patients in complex health systems.[4] Maintaining interpersonal continuity has proved particularly challenging, with moves to team-based care, changes in medical workforce patterns and policy emphasis on access being viewed as contributing causes.[5] This is of significant concern, as there is evidence that reduced interpersonal continuity is associated with poorer medical outcomes in older patients[6] and those with chronic conditions.[7] It is widely acknowledged that major reforms in the structure and provision of GP/FM services will be required to cope with these challenges.[4] However it is less widely appreciated that there is a corresponding need to consider the impact of an ageing population on GP/FM training, and how training must adapt to optimise both educational and patient outcomes.[8, 9]

A central implication for GP/FM training is the requirement for appropriate education and experience in the management of older and chronically ill patients as they will

constitute a significant proportion of future GPs' practices.[9] However, studies from Ireland[10] and the UK[11] suggest that older patients[10] and patients with chronic problems[10, 11] may be less willing to consult GP/FM trainees, and Australian data indicate that trainees manage fewer of these patients than established GPs.[9] A recent Canadian study reported that a major reason given by patients for not wanting to see a GP/FM trainee was to maintain their relationship with their usual physician,[12] which in combination with the heightened preference for interpersonal continuity of care by older and chronically ill patients,[13] may help explain these patients' lower consultation rates with trainees in community settings. In addition, there is evidence that when older patients do see trainees, there is a tendency for patients to defer significant or chronic problems until a visit with their usual GP.[14] As GP/FM trainees are typically required to rotate through training facilities, whether community-based as in Australia or academic centre-affiliated, the opportunities to develop long-term relationships with older patients are limited. Therefore there is a significant risk of trainees missing vital clinical experience or, alternatively, a risk of reducing interpersonal continuity in the management of older patients when trainees are involved in their care.

Thus we need to develop models of older patient-trainee interactions that provide safety and satisfaction for patients, quality learning opportunities for trainees, and acceptable workloads for training facilities. Research is required for the successful development of such models. As an additional impetus to such research, it may be possible to extrapolate patients' attitudes to trainees to patients' general attitudes to doctors other than their regular doctor. A qualitative study from Denmark successfully utilised GP trainees as 'unfamiliar doctors' to contrast with patients' 'regular GPs'[15] and an Australian study noted that patients may not differentiate the role of a trainee from that

of a locum or causally employed doctor.[14] Hence investigation of attitudes towards trainees may contribute to our understanding of patients' responses when interpersonal continuity is disrupted and inform the development of processes of care beyond the training environment.[15]

In response to the paucity of data regarding older patients attitudes to trainees,[16] a multi-phase research project was undertaken in Australia. This paper reports on the final study of this project. Results of the previous phases have been reported elsewhere.[14, 16-18] Generalisation of the findings of the pilot survey phase was limited by the small sample size and recruitment from a single Regional Training Provider (RTP).[17] Hence, this study aimed to provide generalisable results by obtaining a robust sample from a diverse and geographically dispersed range of metropolitan, regional, and rural training practices. A hypothesis tested was that participants' acceptance of trainees for chronic disease management would be improved by maintaining a relational link with their regular GP around trainee consultations.

Methods

Survey instrument

Development of the survey instrument was informed by the results of a literature review[16] and a qualitative study.[14] The instrument was piloted as previously described,[17] with preliminary exploration indicating the attitude scales to have acceptable internal reliability[17] and an identifiable factor structure.[18] Hence no changes were made to the scales used in the instrument. Three categorical and two open response items relating to patient demographic and health data were found to be redundant and excluded. Thus, the instrument consisted of eight categorical items addressing demographics and GP service use; two open response items; a 5-point self-assessed health rating item; two 5-

point satisfaction rating items (regarding trainee care and communication); a 22-item attitude scale; and a 6-part chronic/complex care attitude scale. The attitude items explored patients' responses across the themes of continuity of care, access, trust, openness and communication using 5-point Likert response formats. The qualitative study had identified that patients were unfamiliar with the term 'registrar'.[14] Thus, as successfully employed in previous research,[10, 17] the term 'new doctor' was used with the following explanatory note for respondents: "The following questions will often refer to the doctors who are working for 6 to 12 months at the practice you attend, gaining broader experience and further training. In the medical world these fully qualified doctors are referred to as GP Registrars. In this survey we will refer to them as 'new doctors'. Please note, we are not referring to medical students."

Recruitment

Approval from the Human Research Ethics Committee of the University of Wollongong was obtained. Of the 18 regional GP training providers (RTPs) in Australia at the time of the study (with over 2500 training facilities), five RTPs with broad geographic bases were selected; one from each of five Australian states. The RTP sampled in the pilot phase was not included in this study. The training practices listed on each of the five RTP's websites were stratified into rural and non-rural regional groups according to the RTP's classification criteria. As one RTP had only a rural training stream, this resulted in a total of nine regional groups: five rural, and four non-rural. Due to their unique patient demographics, university-based, defence force or Aboriginal Medical Service practices were excluded. Practices were also excluded if they had not hosted a registrar within the calendar year. Eligible practices were randomly selected within each regional group and invited by telephone to participate until four practices from each rural and five practices from each non-rural group in each state consented to involvement; this

produced an initial cohort of 40 practices. In each participating practice, personnel were instructed to offer an information sheet and the questionnaire to 50 sequential patients aged 60 and over, post-consultation. Questionnaire distribution was undertaken during November and December 2009. Practices received a $100 gift-voucher in recognition of the time spent in participation in the study. The respondents returned completed questionnaires by mail to the university.

Data analysis

The data were analysed using SPSS version 17. Chi square analysis was used to assess how closely the sample resembled the Bettering the Evaluation and Care of Health (BEACH)[19] sample thereby informing comment on the generalisability of the results. The BEACH study is a large longitudinal study of general practice activity in Australia considered to have a highly representative national sample of the population attending general practices.[19] The generalised estimating equations procedure in SPSS was used for logistic modelling. Participants' state, regional group and practice were entered as subject variables into each of the models; reflecting the study design and controlling for the effects of intra-strata and intra-cluster correlations. Three end-points were chosen for initial investigation: frequency of trainee visits; satisfaction with trainee visits; and comfort in independent trainee chronic/complex problem management. Ordinal logistic models were tested for each end-point incorporating the following independent variables: demographics (age and gender); factors associated with the degree to which patients valued of continuity of care (PVC) derived from previous research (length of time with current GP, chronic illness and self-rated health)[13] and a novel factor derived from the pilot study (perceived permission from current GP to see trainees).[17] The responses from participants with chronic/complex conditions were further investigated for the 6-part trainee chronic/complex care attitude scale. Due to the low cell

frequencies for some items in this scale, multinomial regression models were inconsistent. Therefore, intercept-only binary logistic models were tested for positive responses (scores 4 and 5 in 5-point Likert response formats). The internal reliability of the attitude scales for the entire study sample was assessed using Cronbach's alpha.

Results

Sample Description

The sampling process is summarised in Table 1.

Table 1: Summary of sampling process

	Practice sampling frame	**Practices invited**	**Practices participating**	**Individual respondents**
South Australia				
Rural	28	8	3	77
Non-rural	34	10	4	100
NSW				
Rural	22	5	4	79
Non-rural	30	13	4	92
Western Australia				
Rural	47	5	4	103
Non-rural	45	7	5	120
Queensland				
Rural	71	7	4	89
Non-rural	103	13	5	123
Victoria				
Rural	36	7	5*	128*
Total	416	75	38	911

*Included one volunteer practice

Thirty eight practices ultimately participated in questionnaire distribution, with data being returned from participants in 37 practices: 19 rural and 18 non-rural. The major reasons given by practices for non-involvement or withdrawal were being too busy with either patient or accreditation pressures. There was no significant difference in the proportions of rural/non-rural practices in the sampling frame compared with the proportions of rural/non-rural practices participating (χ^2=.20, 1 d.f., p=.66) or the

proportions of rural/non-rural practices invited compared with the proportions of rural/non-rural practices participating (χ^2 =1.54, 1 d.f., p=.21).

Of a total of 1900 surveys distributed, 911 completed surveys (47.9%) were returned. Response rates for practices from which participants returned surveys ranged from 18% to 76% with a median of 44%. Rural respondents comprised 52.2% of the sample. The age range of respondents was 60 to 93 years with a mean age of 72.4 years; 39.3% were aged 75 years and over. Five hundred and thirty (58.3%) of the respondents were female. The gender distribution for respondents in the sample was not significantly different from that of the BEACH[19] sample aged 65 years and over (χ^2 =1.53, 1 d.f., p=.22). The majority of respondents (69.5%) reported having a chronic or complex medical problem. Three quarters of respondents (76.4%) had been at their current practice for five years or more and over half with their current GP for five years or more (56.2%). Six-hundred and fifty-five (71.9%) respondents stated they had seen a trainee; 34.0% of the total sample 'once or twice'; 30.3% 'occasionally' and 7.6% 'regularly'.

Attitudes to GP/FM trainees

Of those who had seen a trainee, the majority were satisfied with the encounters (satisfied=30.4%; very satisfied=44.3%), and had found the trainees easy to communicate with (agreed=31.1%; strongly agreed=42.6%). Over three-quarters were happy to see a trainee for a minor problem (agreed=22.7%; strongly agreed=60.3%), however a majority also felt that it required time to develop a good relationship (agreed=25.6%; strongly agreed=49.1%) and trust (agreed=26.4%; strongly agreed=31.8%) with a new doctor. A quarter of all respondents were comfortable with a trainee managing a chronic/complex condition alone (comfortable=15.6%; very comfortable=12.0%).

Attitudes to their usual GP

Nearly all respondents agreed that it was important to them to have a regular doctor who knew them and their medical problems well (agreed=11.5%; strongly agreed= 78.3%), and valued continuing their relationship with their current doctor into the future (agreed=11.8%; strongly agreed= 84.5%). A similar proportion wanted to know that their ongoing contact with their regular doctor would be maintained if they saw a trainee (agreed=15.4%; strongly agreed=77.9%). Most preferred to see their regular doctor for the management of all of their medical conditions (agreed=17.1%; strongly agreed=69.1%).

Attitudes to their practice team

Almost all respondents expected that all doctors at the surgery they attended would have good medical knowledge and skills (agreed=21.2%; strongly agreed=72.2%), and over half thought their regular doctor was happy for them to see a trainee for any of their medical problems (agreed=26.7%; strongly agreed=29.6%). However, the majority stated they would only be willing to see a new doctor if they knew that doctor worked closely with their regular doctor (agreed=23.3%; strongly agreed=35.8%). Similar proportions wanted to know the qualifications and experience of trainees (agreed=22.1%; strongly agreed=40.8%) and the length of time a trainee would be staying in the practice (agreed=24.0%; strongly agreed= 44.3%). Participant's responses to attitude items are presented in Table 2.

Table 2: Responses to attitude items

	Very unsatisfied	**2**	**3**	**4**	**Very satisfied**
6. How satisfied have you generally been with the medical care you have received from the new doctors in your surgery?	15 (2.4%)*	22 (3.5%)*	123 (19.4%)*	193 (30.4%)*	281 (44.3%)*
	Strongly disagree	**2**	**3**	**4**	**Strongly agree**
7. I am happy to see a new doctor for a minor medical complaint, or simple request like a repeat prescription	25 (2.8%)	23 (2.6%)	105 (11.7%)	203 (22.7%)	540 (60.3%)
8. It is important to me to have a regular doctor who knows me and knows my medical history well.	7 (0.8%)	19 (2.1%)	66 (7.3%)	104 (11.5%)	707 (78.3%)
9. Most of the time it is more important for me to see any doctor who is available rather than waiting to see the doctor of my choice	175 (19.5%)	197 (21.9%)	219 (24.4%)	158 (17.6%)	149 (16.6%)
10. I prefer to see my regular doctor for the management of all my medical conditions	17 (1.9%)	29 (3.2%)	78 (8.7%)	154 (17.1%)	623 (69.1%)
11. In seeing a new doctor, it would take time to build trust	25 (2.8%)	84 (9.4%)	266 (29.6%)	237 (26.4%)	286 (31.8%)
12. I am uncertain how well a new doctor would be able to help me with my problems	61 (6.8%)	133 (14.9%)	330 (37.0%)	223 (25.0%)	146 (16.3%)
13. I would not feel comfortable talking with one of the new doctors about a sensitive problem	156 (17.3%)	170 (18.9%)	225 (25.0%)	158 (17.6%)	191 (21.2%)
14. If I see a new doctor, I worry that they might not take my concerns seriously	200 (22.3%)	231 (25.8%)	222 (24.7%)	133 (14.8%)	111 (12.4%)
15. I would not find seeing a new doctor reassuring	159 (17.7%)	215 (23.9%)	276 (30.7%)	136 (15.1%)	113 (12.6%)
16. If I saw a new doctor for a medical problem, I would like to know that my ongoing contact with my regular doctor was not broken	7 (0.8%)	11 (1.2%)	41 (4.7%)	136 (15.4%)	686 (77.9%)
17. It would be good to have information available regarding the experience and qualifications of the new doctors	36 (4.1%)	60 (6.8%)	230 (26.2%)	194 (22.1%)	359 (40.8%)
18. It would be good to have information regarding what period of time a new doctor will be working at my surgery (e.g. 6 months, 12 months, indefinitely)	31 (3.5%)	47 (5.3%)	201 (22.9%)	211 (24.0%)	389 (44.3%)
19. I think my regular doctor is happy for me to see the new doctors for any of my medical problems	32 (3.7%)	51 (5.9%)	294 (34.0%)	231 (26.7%)	256 (29.6%)

20. Supporting the new doctors who come to my medical practice might encourage more doctors to stay in the area.	9 (1.0%)	15 (1.7%)	151 (17.1%)	237 (26.8%)	471 (53.3%)
21. I expect that all of the doctors at the surgery I attend have good medical knowledge and skills	8 (0.9%)	6 (0.7%)	44 (5.0%)	188 (21.2%)	640 (72.2%)
22. The relationship I have with my usual doctor is something I would value continuing into the future	3 (0.3%)	7 (0.8%)	23 (2.6%)	104 (11.8%)	745 (84.5%)
23. A new doctor would not have the full picture of my medical history and background	73 (8.3%)	123 (14.0%)	273 (31.0%)	183 (20.8%)	229 (26.0%)
24. I am only willing to see a new doctor if I knew the doctor worked closely with my regular doctor	58 (6.6%)	97 (11.0%)	207 (23.4%)	206 (23.3%)	317 (35.8%)
25. I don't like having to go through my medical history all over again with a new doctor	82 (9.4%)	116 (13.3%)	227 (26.0%)	165 (18.9%)	283 (32.4%)
26. Knowing that my medical record is readily available helps me feel confident in seeing different doctors in the practice	18 (2.0%)	31 (3.5%)	135 (15.4%)	231 (26.3%)	464 (52.8%)
27. I have found the new doctors easy to communicate with	9 (1.5%)**	23 (3.7%)**	131 (21.1%)**	193 (31.1%)**	264 (42.6%)**
28. If my usual doctor transferred my care to one the new doctors, I'd feel a bit abandoned	74 (8.4%)	94 (10.7%)	173 (19.7%)	176 (20.1%)	359 (41.0%)
29. It takes time to develop a good relationship with a new doctor	22 (2.5%)	50 (5.7%)	150 (17.1%)	225 (25.6%)	431 (49.1%)
30. How comfortable would you feel having a long-term or complex medical problem, for example diabetes or a heart problem, managed in the following situations?	**Not at all comfortable**	**2**	**3**	**4**	**Very comfortable**
a. A new doctor alone	193 (22.1%)	180 (20.6%)	259 (29.7%)	136 (15.6%)	105 (12.0%)
				Yes	**No**
32. Do you feel the need for a regular doctor to keep track of your medical care?				774 (87.3%)	113 (12.7%)

*valid responses for this item from participants who had stated they had seen a GPR (n=634)
**valid responses for this item from participants who had stated they had seen a GPR (n=620)

Predictors of responses

Of note among the results of the regression models, those who agreed with "I think my regular doctor is happy for me to see the new doctors for any of my medical problems" (score 4 or 5 in 5-point ascending Likert response format), compared with those who strongly disagreed (score 1 in 5-point ascending Likert response format), were significantly more likely to have: increased frequency of trainee visits (score 4: p=.016; score 5: p=.002); increased satisfaction with trainee consultations (score 4: p=.029; score 5: p<.001); and increased comfort in independent trainee chronic/complex problem management (score 4: p<.001; score 5: p<.001). Those who had been attending their current GP < 1 year, in comparison with those with no regular GP, were significantly less likely to have an increased frequency of trainee visits (p=.002); however they were more likely to have higher satisfaction with those visits (p=.004). Female gender (p=.027), chronic/complex condition (p=.022) and attending current GP > 10 years (p<.001) were all associated with lower likelihood of comfort with trainee chronic/complex problem care. All variables retained after regressions are presented in Table 3.

Table 3: Variables retained after logistic regression

	Exp(B)	95% CI for Exp(B)	Sig.
Variables predicting frequency of GPR consultations			
"I think my regular doctor is happy for me to see the new doctors for any of my medical problems" = 5 (response=1 as reference)	4.33	1.69 – 11.09	p=.002
"I think my regular doctor is happy for me to see the new doctors for any of my medical problems" = 4 (response=1 as reference)	3.16	1.23 – 8.12	p=.016
Length of time with current GP 1-4 years ('no regular GP' as reference)	.42	.26 - .68	p<.001
Length of time with current GP < 1year ('no regular GP' as reference)	.34	.17 - .67	p=.002
Variables predicting satisfaction with GPR consultations*			
"I think my regular doctor is happy for me to see the new doctors for any of my medical problems" = 5 (response=1 as reference)	15.60	3.45 – 70.43	p<.001
"I think my regular doctor is happy for me to see the new doctors for any of my medical problems" = 4 (response=1 as reference)	5.02	1.18 – 21.47	p=.029
Length of time with current GP < 1year ('no regular GP' as reference)	2.25	1.29 – 3.94	p=.004
Patient age	1.03	1.00 – 1.06	p=.030
Female gender	.74	.57 - .95	p=.019
Variables predicting comfort in independent GPR chronic/complex problem care			
"I think my regular doctor is happy for me to see the new doctors for any of my medical problems" = 5 (response=1 as reference)	23.11	7.56 – 70.65	p<.001
"I think my regular doctor is happy for me to see the new doctors for any of my medical problems" = 4 (response=1 as reference)	16.19	5.83 – 44.97	p<.001
"I think my regular doctor is happy for me to see the new doctors for any of my medical problems" = 3 (response=1 as reference)	7.89	2.95 – 21.11	p<.001
"I think my regular doctor is happy for me to see the new doctors for any of my medical problems" = 2 (response=1 as reference)	7.24	2.33 – 22.44	p=.001
Female gender	.76	.59 - .97	p=.027
Chronic/complex condition	.67	.47 - .94	p=.022
Attending their current GP 5 – 10 years ('no regular GP' as reference)	.53	.30 - .94	p=.029
Attending their current GP 1-4 years ('no regular GP' as reference)	.45	.28 - .73	p=.001
Attending their current GP >10 years ('no regular GP as reference')	.36	.22 - .61	p<.001

*sample= participants who had stated they had seen a GPR with valid responses for items in this model (n=571)

Attitudes of participants with chronic/complex problems to trainee care

A minority of respondents with chronic/complex problems were comfortable with independent trainee management of those problems; however, there was a trend to increased comfort with increased personal contact with their regular GP. Thus a quarter of respondents were comfortable with a trainee managing a chronic/complex condition alone (comfortable=14.0%; very comfortable=11.4%); increasing to over a half with the trainee phoning their regular doctor to check on management (comfortable=29.7%: very comfortable=32.2%). The proportion increased to three-quarters if their usual GP was personally called in (comfortable=25.2%; very comfortable=52.7%) and to 83.5% with the trainee and their usual doctor consulting together (comfortable=18.2%%; very comfortable=65.3%). Responses for these items are summarised in Table 4.

Table 4: Attitudes of participants with chronic/complex problems to trainee care

30. How comfortable would you feel having a long-term or complex medical problem, for example diabetes or a heart problem, managed in the following situations?	**Not at all comfortable**	**2**	**3**	**4**	**Very comfortable**
a. A new doctor alone	142 (23.7%)	136 (22.7%)	169 (28.2%)	84 (14.0%)	68 (11.4%)
b. A new doctor and the practice nurse	103 (17.2%)	122 (20.4%)	178 (29.8%)	109 (18.2%)	86 (14.4%)
c. A new doctor with a phone call to my regular doctor to double-check the management	40 (6.7%)	42 (7.0%)	145 (24.3%)	177 (29.7%)	192 (32.2%)
d. A new doctor who called in my regular doctor to double-check the management	25 (4.2%)	18 (3.0%)	90 (15.0%)	151 (25.2%)	316 (52.7%)
e. A new doctor and my regular doctor together	8 (1.3%)	16 (2.6%)	76 (12.6%)	110 (18.2%)	395 (65.3%)
f. My regular doctor alone	2 (.3%)	1 (.2%)	21 (3.6%	36 (6.2%)	523 (89.7%)

Participants who stated they had a long-term or complex problem n=616

Modelling confirmed an increased likelihood of comfort (score 4 or 5 in 5-point ascending Likert response format) with trainee chronic/complex care when their regular GP was involved in management (p<.001), with an overall trend to increased likelihood of comfort (score 4 or 5) for each increase in GP involvement, as outlined in Table 5.

Table 5: Likelihood of comfort with chronic/complex care

30.) How comfortable would you feel having a long-term or complex medical problem, for example diabetes or a heart problem, managed in the following situations? **5-point Likert response format: 1=not at all comfortable to 5=very comfortable**			
Response	**Exp(B)**	**95% CI for Exp(B)**	**Sig.**
a.) A new doctor alone			
4 or 5	.34	.27 - .43	p<.001
b.) A new doctor and the practice nurse			
4 or 5	.48	.40 - .59	p<.001
c.) A new doctor with a phone call to my regular doctor to double-check the management			
4 or 5	1.62	1.32 – 1.99	p<.001
d.) A new doctor who called in my regular doctor to double-check the management			
4 or 5	3.53	2.73 – 4.56	P<.001
e.) A new doctor and my regular doctor together			
4 or 5	5.04	4.09 – 6.20	p<.001
f.) My regular doctor alone			
4 or 5	23.23	15.60 – 34.60	p<.001

Participants who stated they had a long-term or complex problem n=616

Internal reliability of the survey instrument

Internal reliability[20] was shown to be adequate for the 22-item attitude scale (Q7-26, 28 and 29: alpha=0.79) and the 6-part chronic/complex care attitude scale (Q30a-f: alpha=0.78).

Discussion

The findings in the context of previous research

To the authors' knowledge, this is the first large-scale investigation into the attitudes of older patients to GP/FM trainees. The results were highly congruent with the findings of the previous qualitative[14] and quantitative[17] phases of the project and consistent with previous international research regarding attitudes to GP/FM trainees.[16] The findings reinforce those of previous research regarding the importance of interpersonal continuity of care to older patients and patients with chronic conditions.[13] This study adds to the literature by demonstrating the effects of the importance of interpersonal continuity on their responses in community training environments. Factors previously identified as being associated with PVC[13] were not consistently associated with patients' attitudes to trainees in our study. However, it should be noted our questionnaire asked for the presence of a chronic/complex condition rather than the number of chronic conditions as in previous research.[13]

Implications for training practices

These findings have important implications for GP training. First, the hypothesis regarding strategies to improve patient acceptance was supported, as most respondents were comfortable with trainee management for a chronic condition providing their regular GP was personally involved in a supervisory capacity. Thus, ensuring a relational link with the older patient's regular GP around trainee consultations appears to be key to the development of acceptable models of trainee chronic/complex condition care.[21] This could also prevent the poorer clinical outcomes associated with reduced interpersonal continuity. Second, respondents wanted transparency regarding the processes around having trainees manage their medical problems and their ongoing contact with their usual GP. Explicit GP-trainee team structures should assist in

addressing these concerns.[21] Third, respondents who agreed their GP was happy for them to see a trainee were significantly more likely to have a favourable attitude towards trainees. Whilst unable to determine causality, these results should encourage practices to communicate to older patients the supervisory role of the GPs, and the team structures in place.

Implications for models of GP/FM chronic care

A common thread in responses to the increasing complexity of patient care has been to promote the central role of GP/FM in facilitating the co-ordination and continuity of patient management.[4, 22, 23] However, successfully providing continuity and co-ordination is challenging in an evolving health care environment of decreasing full-time GPs and increasing chronic disease caseloads.[3] The findings from this study suggest older patients may be comfortable with models of team care where their regular primary care physician takes a consultant-like role in their chronic disease management, thus facilitating informational, management and interpersonal continuity, without the physician needing to undertake each consultation. Coupled with strong information systems, it may therefore be possible to develop models of care that improve chronic disease management efficiency, maintain older patient satisfaction and result in favourable patient outcomes.

Strengths and limitations of this study

The findings of this study should be considered in the light of its limitations. The overall practice response rate was 50.7%, and the patient response rate was 47.9%. As it was not possible to track non-responders, it is not known whether there was a systematic bias between the participating and non-participating groups. However, a number of factors suggest a low risk of bias: the gender distribution reflected that of

previous national samples,[19] there was no significant difference in the proportions of rural/non-rural practices responding; and there was wide geographic distribution of randomly selected practices.

Further research

As with any cross-sectional study, it is not possible to draw conclusions as to causal relationships. Hence further research is required to assess whether the suggested strategies actually result in improved outcomes in patient acceptance, and to assess further outcomes such as patient safety, clinical parameters, trainee competency and practice capacity. In addition, international comparative research is required to allow comment on country-specific applications. The findings of this study provide further evidence that interpersonal continuity of care is central to the function of GP/FM. However, further research exploring the theoretical basis of this core factor is required,[24] not only to assist day-to-day patient care, but so that it can be better articulated by educators and comprehended and learned by trainees.

References:

1. UN. World Population Ageing: 1950-2050. 2002; http://www.un.org/esa/population/publications/worldageing19502050/. Accessed 19.2.2011.

2. AIHW. Incidence and prevalence of chronic diseases. 2008; http://www.aihw.gov.au/cdarf/data_pages/incidence_prevalence/index.cfm. Accessed 26th May 2010.

3. Britt H, Miller GC. General practice in Australia, health priorities and policy 1998 to 2008. General practice series no. 24. Cat no. GEP 24. 2009.

4. NHHRC. A Healthier future for all Australians - final report of the National Health and Hospitals Reform Commission - June 2009. 2009; http://www.health.gov.au/internet/nhhrc/publishing.nsf/Content/nhhrc-report. Accessed 28.09.2010.

5. Guthrie B, Saultz JW, Freeman GK, Haggerty JL. Continuity of care matters. *BMJ.* 2008;337:a867.

6. Ionescu-Ittu R, McCusker J, Ciampi A, et al. Continuity of primary care and emergency department utilization among elderly people. *CMAJ.* Nov 20 2007;177(11):1362-1368.

7. Worrall G, Knight J. Continuity of care is good for elderly people with diabetes: retrospective cohort study of mortality and hospitalization. *Can Fam Physician.* Jan 2011;57(1):e16-20.

8. Lipman T. The future general practitioner: out of date and running out of time. *Br J Gen Pract.* Sep 2000;50(458):743-746.

9. Spike N, Britt H. The clinical activities of VMA Registrars in each stage of training. Final report to Victoria Metropolitan Alliance. Melbourne: Monash University; 2006.

10. Murphy AW. Opening Pandora's box: patients' attitudes towards trainees. Dublin General Practice Vocational Training Scheme Third Year Group 1991-1992. *Fam Pract.* Sep 1995;12(3):318-323.

11. Allen H, Bahrami J. Patients' attitude towards trainees. *J R Coll Gen Pract.* Nov 1981;31(232):680-682.

12. Malcolm CE, Wong KK, Elwood-Martin R. Patients' perceptions and experiences of family medicine residents in the office. *Can Fam Physician.* Apr 2008;54(4):570-571, 571 e571-576.

13. Nutting PA, Goodwin MA, Flocke SA, Zyzanski SJ, Stange KC. Continuity of primary care: to whom does it matter and when? *Ann Fam Med.* Sep-Oct 2003;1(3):149-155.

14. Bonney A, Phillipson L, Jones SC, Iverson D. Older patients' attitudes to general practice registrars - A qualitative study. *Aust Fam Physician.* Nov 2009;38(11):927-931.

15. Frederiksen HB, Kragstrup J, Dehlholm-Lambertsen G. It's all about recognition! Qualitative study of the value of interpersonal continuity in general practice. *BMC Fam Pract.* 2009;10:47.

16. Bonney A, Phillipson L, Reis S, Jones SC, Iverson D. Patients' attitudes to general practice registrars: a review of the literature. *Educ Prim Care.* Sep 2009;20(5):371-378.

17. Bonney A, Jones SC, Phillipson L, Iverson D. General practice registrars: attitudes of older patients. *Aust Fam Physician.* 2010;39(6):419-424.

18. Bonney A, Magee C, Caputi P. Measuring older patients' attitudes to general practice registrars: Exploratory factor analysis of a survey instrument. *Focus on Health Professional Education: A Multi-disciplinary Journal.* 2011:12(3):74-85

19. Britt H, Miller GC, Charles J, et al. *General practice activity in Australia, 2008-09. General practice series no. 25. Cat. no. GEP 25.* Canberra: AIHW;2009.

20. Bland JM, Altman DG. Cronbach's alpha. *BMJ.* Feb 22 1997;314(7080):572.

21. Gerace T, Sangster J. Factors determining patients' satisfaction in a family practice residency teaching center. *J Med Educ.* Jun 1987;62(6):485-490.

22. RCGP. Leading the way: high quality care for all through general practice. 2010; http://www.rcgp.org.uk/PDF/1146-1510_Political_Manifesto_Web_key_documents.pdf. Accessed 19.2.2011.

23. PCPCC. Joint Principles of the Patient Centered Medical Home. 2007; http://www.pcpcc.net/content/joint-principles-patient-centered-medical-home. Accessed 3 February 2010.

24. Freeman GK, Olesen F, Hjortdahl P. Continuity of care: an essential element of modern general practice? *Fam Pract.* Dec 2003;20(6):623-627.

Chapter 7: The Older Patients' Attitudes to General Practice Trainees (OPAGPT) Scale: Trust, continuity and implications

Introduction

Primary care services are under significant pressure to reorient to the needs of an older patient base and the resultant burgeoning in chronic disease management.[1, 2] For general practices engaged in training, an ageing population creates a further challenge, which is the imperative to provide future general practitioners (GPs) with appropriate experience in the management of older patients and patients with chronic illnesses.[3]

These are considerable challenges, as there is mounting evidence that whilst older patients are generally willing to consult trainees for minor problems,[4] they are significantly less comfortable in having GP trainees (termed GP registrars in Australia) manage chronic conditions.[4, 5] This adversely affects the ability of training practices to provide appropriate clinical experience for trainees,[3] and reduces the overall chronic disease management capacity of training practices. On a more fundamental level, it also demonstrates a mismatch between the teaching responsibilities of training practices and the expectations of patients seeking care.

Understanding the attitudes of older patients, and incorporating their 'voice' in models of care, is vital if community-based clinical training is to have their support and meet their needs. However, there is a paucity of research concerning older patients' attitudes to GP trainees, and in particular a lack of data collected using instruments designed and validated for use in older populations.[6]

In an earlier phase of a project to provide such data,[4, 5, 7] the authors' research group reported the results of an exploratory factor analysis of a purpose-designed attitude scale – the Older Patients' Attitudes to General Practice Trainees (OPAGPT) scale – applied to a small, geographically localised sample.[6] More recently the authors' research group employed the scale in a larger cross-sectional multi-region study in Australia.[8]

The focus of this paper is to report on the psychometric properties of the OAPGPT scale, including exploratory factor analysis, when applied to this larger and more diverse sample. A further aim is to comment on the consistency of the responses to the scale across the two studies. The construct validity of the scale, assessed by testing predictive models which incorporated the derived factors and comparing the results with previous research and theory,[9] is reported. Implications of the findings for GP training and future research are discussed.

Methods

Materials

The survey instrument was developed on the basis of a literature review[7] and a qualitative study.[5] As research had identified that patients were unfamiliar with the term 'registrar',[5] the previously successfully used term 'new doctor' was employed in the survey instrument,[4, 10] with an explanatory note for respondents. In addition to the 22-item OPAGPT scale investigated in this study, the instrument consisted of: eight categorical items addressing demographics and GP service use; two open response items regarding information received about trainees and general comments; a 5-point self-assessed health rating scale; two satisfaction rating items (regarding trainee care and communication); and a 6-item chronic/complex condition management vignette.

The OPAGPT scale and vignette items used 5-point Likert response formats. The instrument was piloted (n= 233), as previously described.[4] Exploratory factor analysis of the 22-item OPAGPT scale demonstrated adequate levels of internal reliability and a three-factor structure; with factors labelled interpersonal trust (IPT), system trust (ST) and interpersonal continuity (IPC).[6]

Recruitment

The recruitment process and sample description have been described in detail elsewhere.[8] Approval from the Human Research Ethics Committee of the University of Wollongong was obtained. A stratified randomised sample of 38 training practices from five Australian states participated. In each participating practice, personnel were instructed to offer an information sheet and the questionnaire to 50 sequential patients aged 60 and over, post-consultation. Distribution was undertaken during November and December 2009. The respondents returned completed questionnaires by mail to the university.

Statistical Analyses

The data were analysed using SPSS version 17 after checking for missing values and data entry errors. Questionnaires with missing age data were excluded from the study. The internal consistency of the attitude scale and the chronic disease management vignette were assessed using Cronbach's α. The inter-item and item-total correlations were calculated for the attitude scale and examined for any items that substantially lowered the internal consistency or were redundant. Velicer's minimum average partial (MAP) test was used to determine the optimal number of factors to extract from the attitude scale, as it is considered more accurate than traditional rule-of-thumb approaches such as using Eigen values.[11] On theoretical grounds it was expected that

the factors may be related; therefore factor analysis was performed using Principal Component Analysis with Direct Oblimin Rotation to identify the factor structure and loadings. The respondents' scores for the items in each of the factors (subscales) identified were averaged; yielding respondents' mean scores for each factor.

The generalised estimating equations procedure in SPSS was used for binary logistic modelling to identify relationships between participant characteristics, attitude items, vignette items and factor scores. Participants' state, regional group and practice were entered as subject variables into each of the models; reflecting the study design and controlling for the effects of intra-strata and intra-cluster correlations. To aid interpretation of the analyses, responses were collapsed into two groups to undertake the regressions such that a neutral response favoured the null hypothesis in Likert response format items, and a value of 4.0 or more was considered high for mean factor scores and self rated health scores. High (>/= 4.0) or low (< 4.0) scores for each of the three factor subscales were used as dependent variables for initial investigation. Models were tested for the dependent variables including as predictor variables participant demographics (age and gender) and factors associated with the extent to which patients valued continuity of care (PVC) derived from previous research (length of time with current GP, chronic illness and self-rated health).[12] Models were then tested with factor subscale scores as the predictor variables. Dependent variables in these models were satisfaction with trainees, comfort with trainee chronic/complex care, frequency of trainee visits and feeling the need for a regular GP.

Results

Sample Description

Thirty seven practices returned data for the survey; 19 rural and 18 non-rural. Of the 1900 distributed, 911 completed surveys (47.9%) were returned. Response rates from the practices returning surveys ranged from 18% to 76% with a median of 44% and a mean of 49%. Rural respondents comprised 52.2% of the sample. The age range of respondents was 60 to 93 years with a mean of 72.4 years; 39.3% were aged 75 years and over. Five hundred and thirty (58.3%) of the respondents were female. The majority of respondents (69.5%) reported having a chronic or complex medical problem. Three quarters of respondents (76.4%) had been at their current practice for five years or more and over half (56.2%) with their current GP for five years or more. Six-hundred and fifty-five (71.9%) respondents recalled having seen a trainee; 34% of the total sample 'once or twice', 30.3% 'occasionally', and 7.6% 'regularly'.

Psychometric Properties of the Questionnaire

Internal reliability was shown to be satisfactory for the OPAGPT scale (Cronbach's α= .79).[13, 14] Deletion of individual items altered the baseline α a maximum of +/- .02 (.77 to .81). The range of inter-item correlation coefficients was -.24 to .63, with a mean of .15. Item-total correlation coefficients ranged from -.05 to .58 with a mean of .34. These results indicated that none of the items substantially reduced the internal consistency, overlapped considerably or were redundant. Hence, all 22 items were included in the subsequent factor analysis.

Velicer's MAP test identified a three factor model as the optimal factor structure; therefore factor analysis was performed to extract three factors. Factor 1 accounted for 25.6% of the variance. The factor loadings for all items were acceptable (.731 to .499)

and the factor had a satisfactory level of internal consistency (α=.86). It was comprised of items relating to vulnerability in the anticipation of seeing a new doctor, in the context of an established relationship with a regular doctor, and was labelled 'interpersonal trust' (IPT).[9, 15] The second factor accounted for 12.1% of the variance. The factor loadings were all adequate (.732 to .535), and the factor also had an acceptable level of internal consistency (α=.70). In these items patients expressed a willingness to consult doctors in their clinic other than their regular GP, trust in the clinic they attended, or trust in doctors in general. It was labelled 'institution/system trust' (ST), incorporating features of both institution and system level trust previously described.[15-17] The third factor accounted for 8.2% of the variance. The factor loadings were also adequate (-.768 to -.693). The factor had a satisfactory level of internal consistency (α=.75) and contained items referring to ongoing personal contact with the one GP. Hence it was labelled 'interpersonal continuity' (IPC).[18] Two items in IPT cross-loaded on IPC: item 21 ('If my usual doctor transferred my care to one of the new doctors, I'd feel a bit abandoned') and item 22 ('It takes time to develop a good relationship with a new doctor'). In the pilot study, these items were extracted to IPC. On the basis of the results of the present study, it was decided to retain these items in IPT as: their loadings were higher in IPT; the alpha for the subscales for IPT and IPC were reduced if the items were changed to IPC; and face validity appeared stronger with the items in IPT. The items and their factor loadings are displayed according to their corresponding factor in Table 1.

Table 1: Items arranged according to factor and factor loadings

Item No.	Item	Factor loadings		
		F1	F2	F3
Factor 1: Interpersonal trust				
9.	I would not find seeing a new doctor reassuring	**.731**		
8.	If I see a new doctor, I worry that they might not take my concerns seriously	**.697**		
6.	I am uncertain how well a new doctor would be able to help me with my problems	**.692**		
22.	It takes time to develop a good relationship with a new doctor	**.667**		-.425
19.	I don't like having to go through my medical history all over again with a new doctor	**.645**		
5.	In seeing a new doctor, it would take time to build trust	**.637**		
7.	I would not feel comfortable talking with one of the new doctors about a sensitive problem	**.637**		
17.	A new doctor would not have the full picture of my medical history and background	**.603**		
11.	It would be good to have information available regarding the experience and qualifications of the new doctors	**.603**		
18.	I am only willing to see a new doctor if I knew the doctor worked closely with my regular doctor	**.588**		
12.	It would be good to have information regarding what period of time a new doctor will be working at my surgery (e.g. 6 months, 12 months, indefinitely)	**.508**		
21.	If my usual doctor transferred my care to one of the new doctors, I'd feel a bit abandoned	**.499**		-.405
Factor 2: System trust				
14.	Supporting the new doctors who come to my medical practice might encourage more doctors to stay in the area.		**.732**	
20.	Knowing that my medical record is readily available helps me feel confident in seeing different doctors in the practice		**.675**	
13.	I think my regular doctor is happy for me to see the new doctors for any of my medical problems		**.656**	
15.	I expect that all of the doctors at the surgery I attend have good medical knowledge and skills		**.601**	
1.	I am happy to see a new doctor for a minor medical complaint, or simple request like a repeat prescription		**.546**	
3.	Most of the time it is more important for me to see any doctor who is available rather than waiting to see the doctor of my choice		**.535**	
Factor 3: Interpersonal continuity				
2.	It is important to me to have a regular doctor who knows me and knows my medical history well.			**-.768**
10.	If I saw a new doctor for a medical problem, I would like to know that my ongoing contact with my regular doctor was not broken			**-.733**
4.	I prefer to see my regular doctor for the management of all my medical conditions			**-.732**
16.	The relationship I have with my usual doctor is something I would value continuing into the future			**-.693**

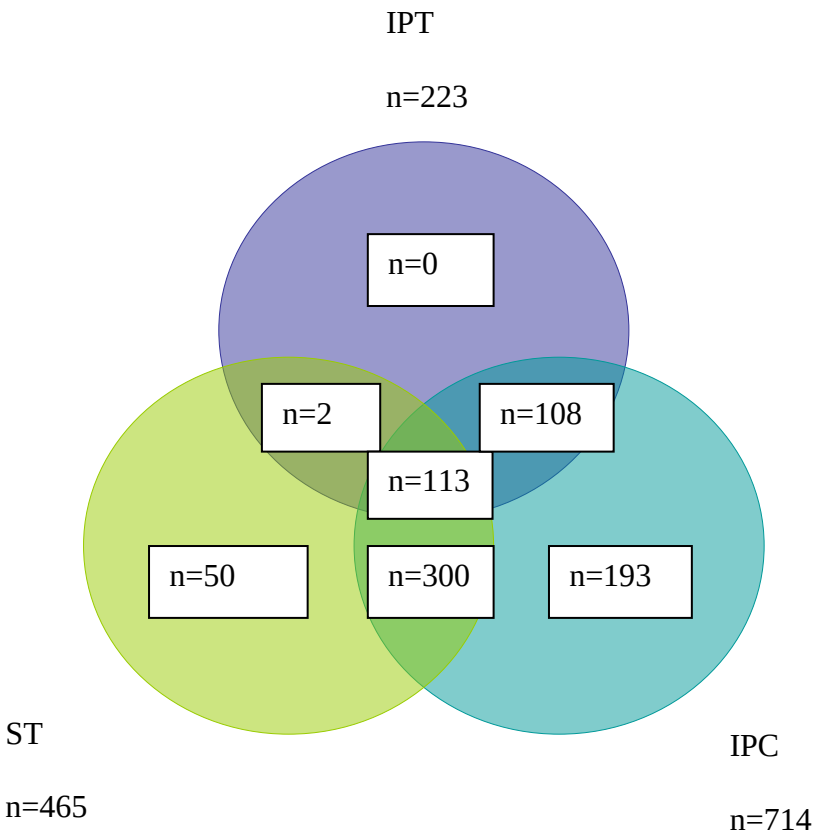
Comparison with the previous study

The factors and loadings in Table 1 were compared with the results from the pilot study that have been reported in detail previously.[6] Variation in the order and magnitude of the factor loadings was noted. In particular, the multi-region study demonstrated a compression in the range of factor loadings, with the range for all items being .499 to -.768 compared with -.387 to .815 in the pilot. Apart from the two items previously noted, the factor structure remained stable when tested across the two populations. The sub-scale alphas (IPT α=.86; ST α=.70; and IPC α=.75) were similar or improved in comparison with the pilot study results (IPT α=.85; ST α=.71; and IPC α=.66). Similarly, the variance explained by each factor was comparable with that in the pilot study. In the present study IPT explained 25.6%, ST 12.1% and IPC 8.2% of the variance compared with 26.2%, 11.4% and 7.5% respectively in the pilot study.[6]

Construct validity of the factors: their predictors and predictive power

From the overall sample, IPT had a range of factor scores of 1.00-5.00 with a mean of 3.50 (SD .76) and 235 responses with scores of 4.0 or more. Higher scores indicated a higher requirement for an existing doctor-patient relationship to enable trust. ST had a range of factor scores of 1.00-5.00, mean 4.04 (SD .63) and 498 responses with scores 4.0 or more. Higher scores were indicative of a higher level of trust at a non-personal, institution or system level. IPC scores ranged from 1.75-5.00, mean 4.66 (SD .56) with 788 respondents with scores of 4.0 or more. In this factor, higher scores demonstrated a higher requirement for personal continuity of care with their GP. Figure 1 is a Venn diagram displaying the distribution of responses with factor scores of 4.0 or more for respondents with all scale items completed (n=777).

Figure 1: *Venn diagram of responses with factor scores >/= 4.0*



Binary logistic regression was undertaken on the overall sample. All variables retained after logistic regression are presented in Table 2.

Table 2: Variables retained after logistic regression

	Odds Ratio	**Lower 95% C.I.**	**Upper 95% C.I.**	**Sig.**
Variables predicting high interpersonal trust (IPT) score				
Self-rated health score </= 3 in a 5-point scale	1.46	1.05	2.03	p=.023
Female gender	1.85	1.34	2.57	p<.001
Variables predicting high system trust (ST) score				
Age >/= 75 years	1.57	1.17	2.10	p=.002
Self-rated health score >/= 4 in a 5-point scale	1.68	1.24	2.27	p=.001
Variables predicting high interpersonal continuity (IPC) score				
Female gender	2.37	1.60	3.52	p<.001
Chronic illness	2.38	1.29	4.39	p=.005
Being with current GP 5 or more years	4.44	2.71	7.28	p<.001
Factor scores predicting satisfaction with GP trainees (score >/= 4/5 in 5-point scale)				
High interpersonal trust (IPT) score	.48	.32	.74	p=.001
High system trust (ST) score	6.31	4.30	9.26	p<.001
Factor scores predicting comfort with GP trainee chronic/complex problem care				
High IPT score	.62	.42	.93	p=.020
High IPC score	.30	.17	.51	p<.001
High ST score	4.78	3.02	7.58	p<.001
Factor scores predicting increased frequency of GP trainee visits				
High ST score	1.99	1.53	2.60	p<.001
High IPC score	.42	.24	.74	P=.003
Factor scores predicting feeling the need for a regular GP				
High ST score	.40	.22	.74	p=.003
High IPT score	2.84	1.21	6.67	p=.017
High IPC score	8.31	4.29	16.12	p<.001

Of note, participants with lower self-rated health scores were significantly more likely to have high IPT scores (p=.023); those with high self-rated health scores were significantly more likely to have high ST scores (p=.001); whilst those with chronic illnesses were significantly more likely to have a high IPC score (p=.005). Factor scores were then used as independent variables in regression models, to assess their predictive power for selected outcomes and preferences. Participants with high ST scores were significantly more likely to have a higher frequency of trainee visits (p<.001), feel comfortable with trainee chronic problem care (p<.001) and be satisfied with trainee consultations (p<.001). They were also significantly less likely to feel the need for a regular GP (p=.003). In contrast, participants with high IPC scores were significantly less likely to feel comfortable with trainee chronic problem care (p<.001) and those with high IPT scores less likely to be satisfied with trainee consultations (p=.001).

Discussion

The consistency of the properties of the instrument between the studies

The factor structure and the variance explained by the factors were very similar to the results of the preliminary exploratory factor analysis undertaken on the scale, which used a smaller, less representative sample.[6] In the current study, a three factor solution was again derived, with the same constructs identified for each factor as previously.[6] There was some minor variation, with two items cross-loaded on IPT and IPC in the present study, indicating they likely straddle the two constructs involved. Associated with the significantly larger sample in this study, there was a modest compression of the range of factor loadings for each factor, and the internal reliability of two of the sub-scales was slightly improved. Overall, the results indicated that the scale has desired psychometric properties when tested across populations sampled from Australian training general practices.

Construct validity

As previously,[6] the results indicated respondents employ (independently or combined) two different modes of trust when seeking medical care in a training practice: trust that is derived from an established personal relationship with the doctor (labelled interpersonal trust); or trust that is derived from sources external to their relationship with that particular doctor, i.e. as an extension of trust in their usual doctor, their medical practice or the medical system (here labelled institution/system trust). These findings were consistent with previous trust research.[15, 16, 19] In addition, the positive predictive effect of chronic illness on IPC scores was consistent with research concerning continuity of care.[12, 20] Factor scores, in turn, were predictive of attitudes and behaviours in a congruent fashion. The respondents with high ST scores were significantly more likely to be positive in attitudes, satisfaction and attendance with trainees. This is consistent with previous findings of 'global doctor trust' being associated with improved trust in family physician trainees; and the association of higher trust with more frequent attendance with trainees.[16] Also in keeping with previous research, those with high IPT scores were less likely to be satisfied with trainee consultations,[21] and those with high IPC scores were less likely to feel comfortable with trainee chronic disease management.[12, 20] Overall, the results indicated that most respondents highly valued interpersonal continuity of care with their regular GP. This desire for continuity appeared modulated in individuals by the mode of trust (interpersonal or institution/system) they deemed appropriate for the context.[5] Poorer self-rated health, likely indicating a heightened perception of vulnerability, significantly increased the likelihood of requiring interpersonal trust. These results lend empirical support to analogous findings from recent qualitative studies utilising theoretical

frameworks derived from attachment theory[22] and game theory.[21] Thus there is strong support from the literature for the construct validity of the factor structure of the scale.

Strengths and limitations of this study

The findings of this study should be considered in the light of its limitations. The overall participant response rate was 47.9%. As it was not possible to track non-responders, it is not known whether there was a systematic difference between the participating and non-participating groups. However, as reported in a previous study concerning this sample, a number of factors suggest a low risk of sampling bias including the wide geographic distribution of randomly selected practices.[8] A further potential weakness is that whilst indicating the widespread requirement for continuity, the IPC subscale demonstrated low discriminating power, as indicated by its high mean factor score (4.66) and accounting for just 8.2% of the variance.

Implications and further research

The results of this study hold several implications. First, the OPAGPT scale has been shown to have acceptable internal reliability and consistent psychometric properties when tested in different samples. In addition, it has a reliable factor structure with appropriate construct validity. Thus it appears to be a valid instrument for assessing older patients' attitudes to GP trainees. The authors encourage other researchers to use this tool, in a variety of national and health system contexts: to assess its validity when used elsewhere; to inform refinement of the tool; and to build the knowledge base of patients' responses in training practices.

Second, the results indicated that older patients' attitudes to trainees are heterogeneous and have varying influences upon their acceptance of trainee chronic problem care. The

groups with high IPT and IPC scores demonstrated significantly reduced acceptance. Female patients and those with poorer self-rated health were more likely to have high IPT scores; and female patients, those with chronic illness and those who had been with their current GP five or more years were more likely to have high IPC scores. These results indicate that the instrument has utility in identifying which groups of patients will be least likely to be comfortable with GP trainee chronic problem care. Targeted strategies aimed to preserve and extend interpersonal trust and continuity, such as sharing continuity of care between trainees and their regular GP, have the potential to address the factors underlying these patients' concerns and improve their acceptance of trainees.[4, 5, 8] However, enhancing the contributions of institution/system level trust by striving for trustworthy training environments may also assist.[19] Examples include providing information concerning the experience and qualifications of trainees and making explicit the supervision provisions in place.[4, 5, 23] Formal trials of such strategies are required to assess if the potential benefits can be realised in clinical practice.

Third, the study contributes to an understanding of older patients' responses when they are faced with choices regarding their care in training environments. The results are consistent with a described conceptual model of trust relations in which patients exhibit a range of responses, from distrust through informed-conditional trust to unconditional trust, depending upon the context and the patients' needs.[17] However, the results presented in this and previous studies[5, 6] suggest an alternative and complementary model supported by attachment[22] and game[21] theories: that an older patient's specific requirement for continuity in a training practice is modulated by the mode of trust (interpersonal or institution/system) they deem appropriate for the context. The model of older patient-trainee interaction presented in this study warrants further research,

especially as it may help inform a patient-centred evolution of general practice training as the population ages.

References:

1. NHHRC. A Healthier future for all Australians - final report of the National Health and Hospitals Reform Commission - June 2009. 2009; http://www.health.gov.au/internet/nhhrc/publishing.nsf/Content/nhhrc-report. Accessed 28.09.2010.

2. Harris MF, Zwar NA. Care of patients with chronic disease: the challenge for general practice. *Med J Aust.* Jul 16 2007;187(2):104-107.

3. Spike N, Britt H. The clinical activities of VMA Registrars in each stage of training. Final report to Victoria Metropolitan Alliance. Melbourne: Monash University; 2006.

4. Bonney A, Jones SC, Phillipson L, Iverson D. General practice registrars: attitudes of older patients. *Aust Fam Physician.* 2010;39(6):419-424.

5. Bonney A, Phillipson L, Jones SC, Iverson D. Older patients' attitudes to general practice registrars - A qualitative study. *Aust Fam Physician.* Nov 2009;38(11):927-931.

6. Bonney A, Magee C, Caputi P. Measuring older patients' attitudes to general practice registrars: Exploratory factor analysis of a survey instrument. *Focus on Health Professional Education: A Multi-disciplinary Journal.* 2011;12(3):74-85

7. Bonney A, Phillipson L, Reis S, Jones SC, Iverson D. Patients' attitudes to general practice registrars: a review of the literature. *Educ Prim Care.* Sep 2009;20(5):371-378.

8. Bonney A, Jones SC, Iverson D. The older patient, the doctor and the trainee: patients' attitudes and implications for models of care. Wollongong: Univeristy of Wollongong; 2011

9. Hall MA, Zheng B, Dugan E, et al. Measuring patients' trust in their primary care providers. *Med Care Res Rev.* Sep 2002;59(3):293-318.

10. Murphy AW. Opening Pandora's box: patients' attitudes towards trainees. Dublin General Practice Vocational Training Scheme Third Year Group 1991-1992. *Fam Pract.* Sep 1995;12(3):318-323.

11. O'Connor BP. SPSS and SAS programs for determining the number of components using parallel analysis and velicer's MAP test. *Behav Res Methods Instrum Comput.* Aug 2000;32(3):396-402.

12. Nutting PA, Goodwin MA, Flocke SA, Zyzanski SJ, Stange KC. Continuity of primary care: to whom does it matter and when? *Ann Fam Med.* Sep-Oct 2003;1(3):149-155.

13. Bland JM, Altman DG. Cronbach's alpha. *BMJ.* Feb 22 1997;314(7080):572.

14. Schmitt N. Uses and abuses of coefficient alpha. *Psychological assessment.* 1996;8(4):350-353.

15. Hall MA, Dugan E, Zheng B, Mishra AK. Trust in physicians and medical institutions: what is it, can it be measured, and does it matter? *Milbank Q.* 2001;79(4):613-639

16. Bonds DE, Foley KL, Dugan E, Hall MA. An exploration of Patients' Trust in Physicians in Training. *J Health Care Poor and Underserved.* 2004;15:294-306.

17. Rowe R, Calnan M. Trust relations in health care: developing a theoretical framework for the "new" NHS. *J Health Organ Manag.* 2006;20(5):376-396.

18. Saultz JW. Defining and measuring interpersonal continuity of care. *Ann Fam Med.* Sep-Oct 2003;1(3):134-143.

19. Mechanic D. The functions and limitations of trust in the provision of medical care. *J Health Polit Policy Law.* Aug 1998;23(4):661-686.

20. von Bultzingslowen I, Eliasson G, Sarvimaki A, Mattsson B, Hjortdahl P. Patients' views on interpersonal continuity in primary care: a sense of security based on four core foundations. *Fam Pract.* Apr 2006;23(2):210-219.

21. Tarrant C, Dixon-Woods M, Colman AM, Stokes T. Continuity and trust in primary care: a qualitative study informed by game theory. *Ann Fam Med.* Sep-Oct 2010;8(5):440-446.

22. Frederiksen HB, Kragstrup J, Dehlholm-Lambertsen B. Attachment in the doctor-patient relationship in general practice: a qualitative study. *Scand J Prim Health Care.* Sep 2010;28(3):185-190.

23. Reichgott MJ, Schwartz JS. Acceptance by private patients of resident involvement in their outpatient care. *J Med Educ.* Sep 1983;58(9):703-709.

Chapter 8: Preparing general practice training for an ageing population

Background

Vocational training for general practice in Australia is structured around an apprenticeship model and provides the basis for a supervised transition to independent practice for trainees.[1] This work-based training provides a robust preparation for professional practice. However, the healthcare environment in which this training occurs is constantly evolving. One of the key challenges presently being faced is a steady increase in the numbers of older patients.[2] The potential impact of this demographic change on general practice should not be under-estimated. People aged 65 years and older represent 13.2% of the Australian population, however they account for 29.7% of all clinical time in Australian general practice.[2] As the proportion of the population aged 65 years and over is expected to double by 2051,[3] it can be expected that a very high proportion of general practice activity will be focused on this age-group in the future. Hence their care needs to be a priority for general practice training.[4]

Increasing age is associated with increased chronic disease rates and increased multi-morbidity;[5] with a consequent increase in the number of problems managed and medications prescribed at GP consultations.[6] Thus, participation in the clinical management of older patients can provide a rich source of learning for general practice registrars (GPRs). However, there are a number of difficulties associated with GPR involvement in older patient care. GPRs are typically required to rotate through at least two training practices during their clinical supervision,[7] thus potentially reducing the interpersonal continuity of care for the patients they see. Reduced interpersonal continuity of care is associated with poorer clinical outcomes for older patients,

including higher rates of emergency hospital presentation[8] and increased mortality for those with diabetes.[9] If GPRs are to be involved in the care of older patients, particularly for chronic disease management, then attention to preserving the interpersonal continuity of their care is important. It is also apparent that many older patients are less willing to consult GPRs, especially for chronic problems.[4, 10-13] Australian research indicates that only a quarter of patients aged 60 years or more are comfortable with independent GPR management of a chronic or complex condition.[10, 13] Loss of interpersonal continuity of care with their regular GP as a result of seeing a GPR appears to be central to patients' reluctance.[11, 14] This is evident in GPRs' reduced consultation rates with older patients, and for management of chronic conditions, compared with established GPs.[4]

Thus training practices are likely to experience problems in providing appropriate training for the kinds of chronic-care caseloads that future GPs will be managing. They will have the pressures of managing their own chronic disease caseloads, providing training opportunities for GPRs, and delivering models of care that maintain interpersonal continuity for older patients. To assist training practices in addressing these challenges, we discuss the emerging evidence concerning the attitudes of older patients to GPRs. We then propose a process of older patient-GPR interaction that shows promise in maintaining patient satisfaction and continuity of care, while providing valuable GPR learning opportunities.

Conceptualising the attitudes of older patients to GPRs

The attitudes of older patients to GPRs can be usefully conceptualised as inhabiting one or more of five themes: continuity of care; access to care; openness to consulting

registrars; trust; and meaningful communication.[11] Illustrative patient comments for each of these themes are listed in Table 1.

Table 1: Themes of older patients' attitudes to general practice registrars

Theme	**Patient comment**
Continuity of care	*It is good to see the same doctor. If you've got tonsillitis it doesn't really matter who you see. If you are working through an issue it is helpful to go back to the same person. Female, 61 years*
Access to care	*Hey mate, if you're in trouble, you'll see anybody. Any doctor. Even the bloody witch doctor. Male, 79 years*
Openness	*I know the doctors have got to start somewhere and they've all got to learn... by going out into the practice it's their only chance, isn't it? Female, 77 years*
Trust	*Well, as a lay person, I've got confidence in the practice and, as I said, I've always been looked after well. Male 71 years*
Meaningful communication	*When I say they [GPRs] don't know the full picture, they've got it all on the computer. You've got to know there's a relationship and they haven't got that same feel [about] what it is that's frightening you or worrying you. You can't do anything about that. You can't sort of put that onto a computer. Female, 70 years*

Quotes from Bonney A, Phillipson L, Jones SC, Iverson D. Older patients' attitudes to general practice registrars - A qualitative study. *Aust Fam Physician* 2009;38(11):927-31

These attitudes are associated with numerous factors which relate to the patient, the practice they attend, the GPR and their regular GP, as outlined in Table 2. The nature of the clinical problem appears to be particularly important, with studies demonstrating that whilst only a quarter of older patients report being comfortable with a GPR managing a chronic or complex problem, over three-quarters report being happy consulting a GPR for a minor or simple problem.[10, 13]

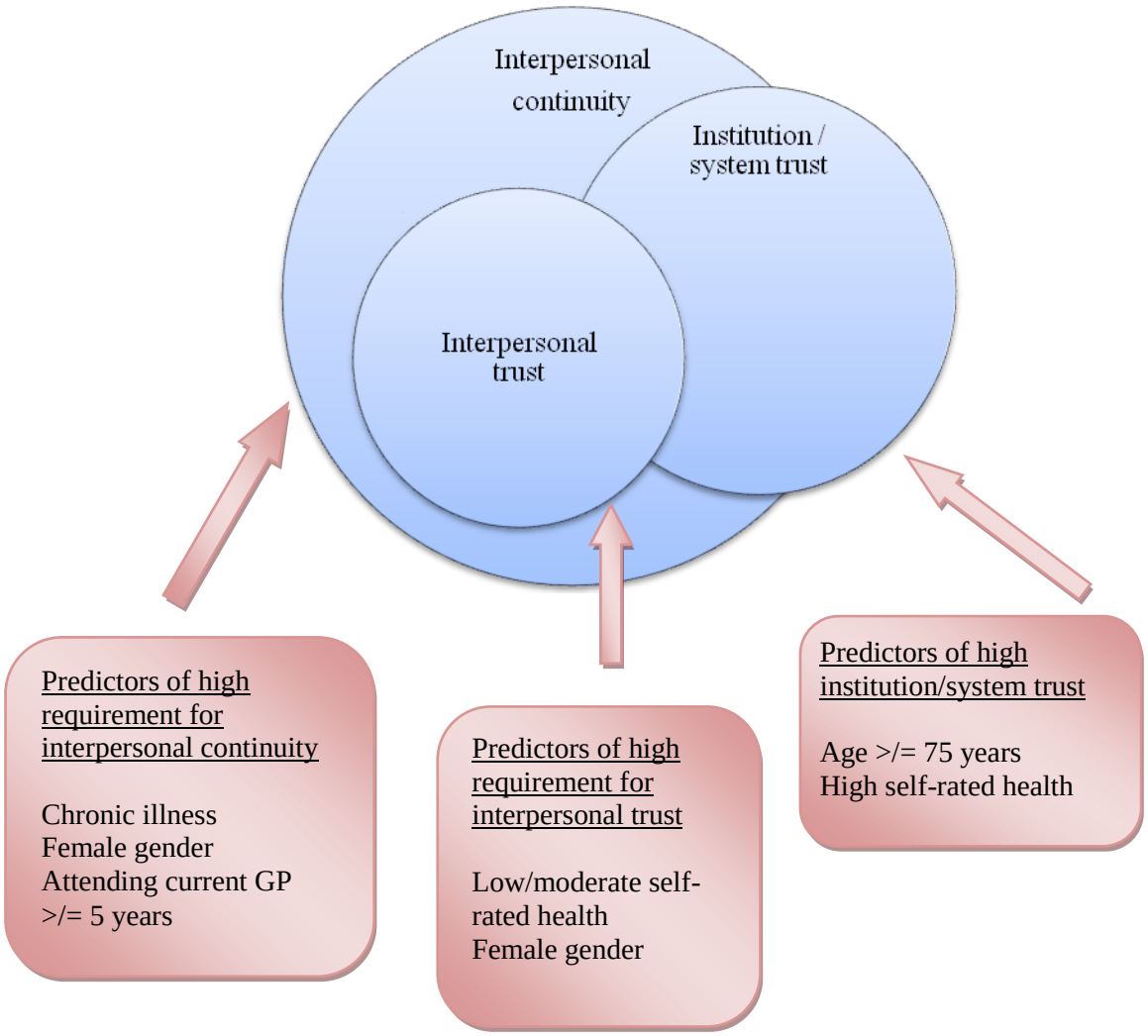
Table 2: Factors associated with older patients' attitudes to GPRs

Factors associated with more positive attitudes	**Factors associated with more negative attitudes**
Patient factors	
Minor or simple problem[10, 13]	Chronic or complex problem (p<.05)[10, 13]
Perceived 'permission' from GP to see GPR (p<.05)[10, 13]	High interpersonal continuity requirement (p<.05)[15]
High institution/system trust[15]	High interpersonal trust requirement (p<.05)[15]
Attending current GP < 1 year (p<.05)[13]	Increasing length of time attending current GP > 1 year (p<.05)[15]
Increasing patient age (p<.05)[13]	Female gender (p<.05)[13, 15]
Having seen a GPR (p<.05)[10]	
GPR factors	
Good communication skills (p<.05)[10]	
Attention and thoroughness [11]	
GP supervisor factors	
Availability to support GPR for chronic/complex problem care (p<.05)[10, 13]	
Facilitation of patients' perceived 'permission' to see GPRs (p<.05)[10, 13]	
Practice Factors	
Good communication regarding training arrangements[11]	
Factors associated with increased attendance	**Factors associated with reduced attendance**
Patient factors	
Attending current practice > /= 10 years (p<.05)[10]	High interpersonal continuity requirement (p<.05)[15]
Attending current GP > / = 10 years (p<.05)[10]	Attending current GP less than 5 years (p<.05)[13]
Perceived 'permission' from regular GP to see GPR (p<.05)[10, 13]	
High institution/system trust (p<.05)[15]	
Practice factors	
Reduced access to regular GP[11]	Good access to regular GP[11]
Rural practice (p<.05)[10]	

One of the reasons for this may be the *kinds* of trust relations that older patients have with their GPs. A very large proportion of older patients have a high requirement for interpersonal continuity of care with their regular GP, and this requirement for

interpersonal continuity is more likely if the patient has a chronic illness or has been attending their GP for some time.[15] However, patients are all different and may react differently in specific circumstances. For example, a proportion of older patients have been shown to display high levels of trust in doctors in general, or in the medical practice they attend, or the medical system as a whole.[15, 16] These patients can be considered to be expressing high levels of institution or system trust,[17, 18] and they are less likely to feel the need for a regular doctor.[15] Other patients not only have a high requirement for interpersonal continuity, but also require an established relationship with a GP in order to enable trust.[15, 16] They can be considered to display a high requirement for interpersonal trust,[18] and to some extent this can be predicted by factors increasing their vulnerability such as poor self-rated health.[15, 16, 18] The overlapping nature of the relationships between interpersonal continuity, institution/system trust and interpersonal trust is illustrated in Figure 1.

Figure 1: *Constructs underlying patients' attitudes and attendance with GPRs*



The relative importance of the types of trust required by patients in their medical encounters may influenced by such factors as their own perceived health and the nature of the medical problem.[15, 19] This appears to affect how important interpersonal continuity is to them at the time of the consultation: the more vulnerable the patient perceives themselves to be, the more likely they will be to require interpersonal trust and hence wish to see their regular doctor.[19] Thus, as the population ages, the

increasing numbers of chronically ill patients are likely to display a high requirement for interpersonal continuity, interpersonal trust and a preference for their regular GP.

The dynamic in training practices, however, is of a three-way interaction between patients, GPs and GPRs.[11] A close, visible link between the patient's GP and the GPR appears to enable a 'halo effect'[18] such that interpersonal trust in the GP can be temporarily 'devolved' to the GPR.[15] Thus, older patients' attitudes to GPRs concerning chronic illness management appear strongly influenced by the maintenance of a relational link with their regular GP during the process of care, and hence may be amenable to change.[10, 13, 20] This is evidenced by the proportion of older patients comfortable with a GPR managing a chronic condition trebling if their regular GP was involved during the consultation.[10, 13] This approach can be purposively employed in practice systems as 'shared-continuity' between the GP and the GP's registrar.[21]

Shared-continuity for older patient-GPR chronic disease management

A shared continuity process for GPR management of chronic problems in older patients is attractive on a number of levels: it provides a means of support and feedback for the GPR;[20] it is more likely to be accepted by patients compared with independent GPR management;[10] and it facilitates continuity of care for patients with their regular GP, including when GPRs change over at the end of their terms.[20, 21] It may also increase the capacity for chronic disease management within training practices as the time the GP needs to spend in shared-continuity consultations may be reduced compared with normal consultations. Barriers to such a process may include the time required for its organisation and reluctance by some GPs to 'give up' the first contact chronic disease management of some of their patients.

A possible model of implementation may look like this:

A training practice has a prominent notice in the waiting room outlining the GP training program, the role of the practice GPs in providing supervision and their encouragement for their patients to consult the GPRs.[20-22] *There is also a notice introducing the new GPR with information concerning their qualifications, experience and the length of time they will be staying at the practice.*[10, 13] *The supervising GP contacts a number of her/his older diabetic patients and asks if they are willing to be involved in a shared-continuity clinic for their diabetes visits.*[10, 13, 20] *The GP explains that their record is readily available, and their care is being 'shared', not transferred.*[10, 13, 21] *In a shared-continuity visit the GPR manages the patient according to the practice protocol. When the management plan is agreed the patient's regular doctor is called in to maintain interpersonal contact with the patient, provide confirmation of the management plan, and provide feedback.*[10, 13, 20, 21] *GPRs are encouraged to complete GP Management Plans and Team Care Arrangements if not already performed. Practice staff are well informed regarding the training program and pleased to address patient queries or concerns in detail.*[21] *The practice manager ensures that appropriate Medicare billing is undertaken to access the relevant Medicare incentives.*

Future directions

There is now an emerging evidence base to assist practices in improving the interactions between older patients and GPRs. This paper proposes a process of care based on this evidence that holds promise in providing meaningful experience in chronic disease management for GPRs, whilst maintaining patient satisfaction and delivering high quality care. However, data from prospective trials to direct training practices are lacking. Now would be a good time for training providers to start planning prospective

trials to assess the outcomes of these strategies in the real world. In addition, further research exploring the factors of trust and continuity is required, not only to assist the day-to-day functioning of training practices, but so that an understanding of these core factors can be better demonstrated by supervisors and learned by GPRs.[23]

References:

1. Sturmberg J, Heard S. General practice education in Australia. Current issues. *Aust Fam Physician.* May 2004;33(5):353-355.

2. Britt H, Miller GC. General practice in Australia, health priorities and policy 1998 to 2008. General practice series no. 24. Cat no. GEP 24. 2009.

3. AIHW. Disability and ageing Australian population patterns and implications: Population ageing in Australia. 2000; http://www.aihw.gov.au/publications/dis/da/da-c02.pdf. Accessed 26th May 2010.

4. Spike N, Britt H. The clinical activities of VMA Registrars in each stage of training. Final report to Victoria Metropolitan Alliance. Melbourne: Monash University; 2006.

5. AIHW. Chronic diseases: About chronic disease. 2008; http://www.aihw.gov.au/cdarf/index.cfm. Accessed 26th May 2010.

6. Britt H, Miller GC, Charles J, et al. *General practice activity in Australia, 2008-09. General practice series no. 25. Cat. no. GEP 25.* Canberra: AIHW;2009.

7. RACGP. *Standards for General Practice Education and Training: Programs and Providers 2005*. South Melbourne: RACGP; 2005.

8. Ionescu-Ittu R, McCusker J, Ciampi A, et al. Continuity of primary care and emergency department utilization among elderly people. *CMAJ.* Nov 20 2007;177(11):1362-1368.

9. Worrall G, Knight J. Continuity of care is good for elderly people with diabetes: Retrospective cohort study of mortality and hospitalization. *Can Fam Physician.* Jan 2011;57(1):e16-20.

10. Bonney A, Jones SC, Phillipson L, Iverson D. General practice registrars: attitudes of older patients. *Aust Fam Physician.* 2010;39(6):419-424.

11. Bonney A, Phillipson L, Jones SC, Iverson D. Older patients' attitudes to general practice registrars - A qualitative study. *Aust Fam Physician.* Nov 2009;38(11):927-931.

12. Murphy AW. Opening Pandora's box: patients' attitudes towards trainees. Dublin General Practice Vocational Training Scheme Third Year Group 1991-1992. *Fam Pract.* Sep 1995;12(3):318-323.

13. Bonney A, Jones SC, Iverson D. The older patient, the doctor and the trainee: patients' attitudes and implications for models of care. Wollongong: University of Wollongong; 2011

14. Malcolm CE, Wong KK, Elwood-Martin R. Patients' perceptions and experiences of family medicine residents in the office. *Can Fam Physician.* Apr 2008;54(4):570-571, 571 e571-576.

15. Bonney A, Jones SC, Iverson D, Magee C. The Older Patients' Attitudes to General Practice Trainees (OPAGPT) Scale: Trust, continuity and implications. Wollongong: University of Wollongong; 2011

16. Bonney A, Magee C, Caputi P. Measuring older patients' attitudes to general practice registrars: Exploratory factor analysis of a survey instrument. *Focus on Health Professional Education: A Multi-disciplinary Journal.* 2011;12(3):74-85

17. Bonds DE, Foley KL, Dugan E, Hall MA, Extrom P. An exploration of patients' trust in physicians in training. *J Health Care Poor Underserved.* May 2004;15(2):294-306.

18. Hall MA, Dugan E, Zheng B, Mishra AK. Trust in physicians and medical institutions: what is it, can it be measured, and does it matter? *Milbank Q.* 2001;79(4):613-639

19. Frederiksen HB, Kragstrup J, Dehlholm-Lambertsen B. Attachment in the doctor-patient relationship in general practice: a qualitative study. *Scand J Prim Health Care.* Sep 2010;28(3):185-190.

20. Reichgott MJ, Schwartz JS. Acceptance by private patients of resident involvement in their outpatient care. *J Med Educ.* Sep 1983;58(9):703-709.

21. Gerace T, Sangster J. Factors determining patients' satisfaction in a family practice residency teaching center. *J Med Educ.* Jun 1987;62(6):485-490.

22. Fuglsang H, Olesgaard P, Pedersen NF, Olesen F. [Patients' attitudes towards and satisfaction with interns in general practice. Practicing interns and patient satisfaction]. *Ugeskr Laeger.* Oct 7 1996;158(41):5768-5772.

23. Freeman GK, Olesen F, Hjortdahl P. Continuity of care: an essential element of modern general practice? *Fam Pract.* Dec 2003;20(6):623-627.

Chapter 9: Reflections and future directions

The aims of the research

The aims of the research were:

- To establish what was currently known from the international literature regarding the attitudes of patients towards GPRs
- To determine important aspects of older patients' attitudes to GPRs in Australia; identify factors that influence those attitudes; and determine which of those attitudes and factors were amenable to change
- To provide recommendations based on the above findings that would enhance the engagement of GPRs in the management of older patients in training practices

At the end of this research project, the following summarised responses to the above research aims can be made:

- The international literature contained no identifiable research focusing on the attitudes of older patients to GPRs; however there was indication that older patients[1] and those with chronic conditions[1, 2] were less positive in their attitudes to GPRs, with concerns regarding loss of interpersonal continuity with their regular GP appearing the likely cause.[3-5] Continuity of care and trust were frequent themes in patient responses and offered avenues for further research.[6]
- This research has demonstrated that patients were generally quite willing to consult GPRs for minor problems and expressed satisfaction in the care they received from GPRs. However they were uncomfortable with GPR chronic/complex problem management.[7, 8] These attitudes were associated with their desire for interpersonal continuity of care with their regular GP, and reflected the interpersonal trust they experienced in that relationship.[9-11] Their

attitudes towards GPR care for chronic/complex conditions were associated with the degree to which a relational link with their regular GP could be maintained, and became significantly more positive with increasing involvement of their regular GP in the consultation.[7, 8]

- Therefore, it is recommended that processes of care encouraging 'shared continuity' be adopted in training practices to enable GPR involvement in the management of the chronic/complex conditions of older patients, whilst facilitating ongoing interpersonal continuity of care with their regular GP.[5, 10] It is also recommended that practices communicate explicitly with patients concerning GP training, the experience and qualifications of GPRs and the supervision structures in place.[7, 8]

Reflections on the limitations of the research

As with any research, the findings of this project need to be interpreted within the limitations of the methods used. Inevitably, a number of strategic choices were required concerning the scope of the research, to keep the research questions within answerable dimensions and in recognition of the limits of time and financial resources. These decisions have the potential to impact the outcomes of the research, and need to be explicitly recognised. There are also factors not wholly within the control of the researcher, such as response rates, which may affect the interpretation and generalisability of results.

Limitations arising from the style of presentation

A key initial strategic decision regarding the research was the format of the thesis. Choosing to present the Thesis in Style 2, as a series of journal article style chapters, provided the advantages of ensuring each step of the research was completed in a

manner which was defensible in its own right, and written in an economical style as mandated by journals. This had the added advantage of providing a means of contributing to the literature immediately. However, this has resulted in a repetition of themes and material in introductory paragraphs, and a repetition of references at the end of each chapter. It has also meant that terminologies have changed from chapter to chapter, depending on the target audience of the intended journal article. A key shift in terminology occurred because the medical discipline referred to in Australia, the UK and most of Europe as 'general practice' is referred to as 'family medicine' in North America. In Australia, the UK and Europe, these doctors are termed 'general practitioners'; in North America as 'family physicians'. To add to the complexity, in Australia and the UK, trainees for this discipline are referred to as 'registrars',[12] while in North America they are called 'residents'.[13] In literature from Europe they are variably referred to as 'residents'[14], 'interns'[15] or 'trainees'[15, 16]; possibly reflecting my own concern of making the papers intelligible to an international audience.

Therefore, Chapter 2 as a review of the literature published in the UK generally uses the local terms for general practitioner or trainee, dependent on the origin of the source journal article. Chapters 3 to 5 were published in Australia, and use the terms 'general practitioner' and 'registrar'. Chapters 6 and 7 are intended for an international audience and refer to the more generic term 'trainee' as well as 'registrar'. Chapter 8 is intended for publication in Australia, and reverts to the term 'registrar'. In this chapter, the term general practice registrar (GPR) will be used to denote any general practice / family medicine trainee. However, it is noted that this changing terminology may present difficulties for the reader not familiar with the field.

Considerations arising from strategic decisions

Another initial key decision was the choice of a definition of 'older patient'. There is no consensus for this definition. Previous international research in the field had used ages 40 years[1] and 60 years[2] as cut-points. The United Nations has published data on population trends using 60 years as a cut-point,[17] whilst the Australian Institute of Health and Welfare uses Australian Bureau of Statistics data with 65 years as a cut-point.[18] A decision was made to adopt 60 years as a cut-point for this research, as it reflected previous GP training research and also provided the opportunity to recruit some respondents who were still employed. It needs to be borne in mind that this categorisation was arbitrary, and hence the responses of the cohort in this study may not fully reflect that of other 'older' populations in the literature.

A further key decision was to limit the literature review to papers published from 1980 onwards. This necessarily excludes some research, albeit to the author's knowledge only a very few papers. An example is a paper from 1979 exploring the types of presentations seen by GPRs in a district in Scotland, in which it was reported that 20% of GPRs' consultations were with patients were aged 65 years and over.[19] This is greater than the 13.6% of consultations reported in more recent Australian data, but equivalent to the rate seen by young Australian vocationally registered GPs.[12] The difficulty with using research that is more than 30 years old is that general practice is a very different environment now compared with the 1970s: the cohort of 'older patients' and GPs are now a different generation; and caseloads have changed;[20] and general practice training has evolved. This is exemplified by the statistic that 39% of consultations for both GPRs and GPs in the previously cited Scottish research were home visits,[19] compared with 0.9% of consultations in contemporary Australian general practice.[21] Hence, the value of the older data to investigation of the current environment is questionable.

Whilst the author considers the choice of the restriction of the scope of the literature justifiable, it does need be borne in mind.

Similarly, it was decided to limit the literature review to community-based generalist medical trainees. The literature concerning patients' views of hospital-based trainees was not cited in this research. Whilst this literature is not extensive, the restriction does present a further limitation to the generalisation of the research undertaken and extrapolation of the results. It is noted that there are fundamental differences between the types of interactions between doctors and patients in hospital settlings compared with primary care settings, central to which is that long-term interpersonal continuity of care is not a central concern in hospital-based care, especially for in-patients. However, some similarities in patients' attitudes to community and hospital based trainees are noted in the literature. These include a generally high level of satisfaction with care by trainees,[22, 23] with a concomitant reluctance regarding having residents involved in 'higher stakes' management; in the hospital context this being surgical procedures.[22, 23] Patients did want to know the training status of hospital residents[24, 25] as with GPRs, and valued a 'humanistic approach'.[26, 27] However, in contrast to patients' attitudes to GPRs, hospital patients seems little concerned about discontinuity of care in the hospital ward.[28] None of the studies regarding attitudes to hospital residents identified by the author focused on older patients. Comparisons between patients' attitudes towards hospital and community based trainees therefore awaits further research.

Specific limitations of the research

Each of the studies in this project has limitations, some of which have been discussed in the respective chapters. However, as the word limitations imposed by a journal article style presentation has limited discussion; further discussion of the limitations of the specific studies is undertaken here.

Chapter 2: The literature review was undertaken using a number of preliminary search terms, including 'doctor-patient relationship'. Key words and Medical Subject Heading (MeSH) terms from the articles obtained were combined to formulate the final search algorithm, as outlined in Chapter 2. This was intended to increase the scope of the final search algorithm. However, the algorithm did not necessarily contain the terms used for the preliminary searches; for example, the term 'doctor-patient relationship' did not appear in the final algorithm. Whilst the lists of references for all papers were scrutinised for relevant publications, it is still possible that not all relevant literature was identified. The literature review was published in 2009, two years before the completion of the thesis. Whilst there is not an extensive research output in this field, the author is aware of a small number of studies that have since been published regarding patients' attitudes to GPRs, cited where appropriate in the thesis. None of these studies focused on the attitudes of older patients. Frederiksen and colleagues in Denmark undertook interviews with patients from three GPs and three GPRs, to contrast the attitudes of patients towards a familiar doctor and an unfamiliar doctor. This group published two analyses of these data.[16, 29] Their first paper identified that whilst a long-term continuous relationship with a GP could be satisfactory, satisfaction and interpersonal continuity of care were not necessarily related. Rather, a process of 'recognition' (respect and remembering) of the patient by the doctor created trusting relationships.[16] Their second analysis reviewed the data from the perspective of adult attachment theory, concluding that an increased sense of vulnerability by the patient increased the patient's perceived need of a regular GP, and hence requirement for interpersonal continuity of care.[29] These papers were limited in application to the current project by a lack of explicit recognition of the training status of the GPR in the interviews or analyses. However, their second paper,[29] and its application of attachment

theory to patients' attitudes to their medical care, was important in the theoretical development of Chapter 7 of this work. A study from Israel surveyed patients' attitudes to being treated by GPRs in the community.[30] This cross-sectional survey of 304 respondents demonstrated similar results to other work reported in the literature review. In particular, whilst 78.9% agreed that GPRs were as skilled as senior doctors, 40% were not pleased by the constant change of GPRs attending them. Similarly to the research undertaken in our project, they found men had more positive attitudes to GPRs.[30] This research, however, did not focus on older patients, and its findings did not affect the conclusions drawn by our study.

Some of the limitations of the papers that were analysed in the literature review have been discussed in Chapters 2 and 5 of the thesis. Only two of the studies referred to older patients[1, 2], and of these, one used age 40 as the cut-point to define 'older'.[1] Neither of these studies used validated instruments. It was noted there was a lack of use of validated survey instruments in all but five of the studies[31-35] and that the majority of studies (nine of the 15) were from single centres.[2-5, 13, 31, 34-36] Thus the generalisability of the results of the majority of the studies was significantly limited. Where multi-centre studies were undertaken, the sample size was small in three (N=153 to N=288).[32, 33, 37] From examination of the methods and results for each of the multi-centre studies, the author was not able to identify any studies where it was explicitly stated that analyses had controlled for the effect of correlation of responses within centres (clustering), although it is possible these analyses may have been undertaken without explicit statement. Thus it appears all of the studies identified contained methodological flaws. There were no multi-method studies and no studies focusing on older patients. The one qualitative study, again, was from a single centre. It was in light of the limitations of the existing literature that the methods for this research project were framed: a mixed

method project utilising multiple sites, use of a reliable survey instrument designed specifically for use in the research population, adequate sample sizes and appropriate analyses.

However, despite its limitations, the previous research was able to provide interesting data on patients' responses. Murphy's study from 10 training practices in Ireland,[1] in particular, provided data from multiple sites with a large sample (N=1510) and an excellent response rate (75%). Whilst the statistical analyses were not sophisticated, this study laid the foundations for understanding that many patients were reluctant to see a trainee for chronic problems, and that older patients (in this study >40 years old) were more negative in their views towards trainees. The other study with of particular interest was by Bonds et al.[31] This study explored patient trust in GPRs in an academic medical centre. It was limited by the being a single centre study with a modest sample (N=217). However, the theoretical underpinnings and the survey instruments used were very well developed, giving the findings significant weight in the literature. A further strength of the literature, notwithstanding the limitations of many of the studies, was that there was a consistency in the overall trends of the results. This was despite the differences in the training environments and social contexts between the UK, Europe and North America. There was a remarkably similar satisfaction rating with trainees and[3, 4, 14, 15, 35] reported willingness to see a trainee again, [2, 4, 15] with a concomitant desire to have a senior GP involved in management.[1, 3, 31] This implies a consistent face validity of the instruments used across the various training environments.

It is important to consider the different international training contexts. Canada and the USA generally utilise family medicine training centres which are affiliated with a university or hospital. Training may be undertaken in associated hospital facilities or in the community and have family medicine staff employed to train GPRs. In contrast, in

Australia and the UK, having completed hospital residency, GPRs are trained in community-based general practices where the supervisors are primarily engaged as clinicians. Direct comparisons between the studies are problematic, as no studies have used the same instruments across international boundaries. It might be expected that older patients would be more tolerant of GPRs in North America where the supervisors may not be as intrinsically engaged in patient care. However, there are indications in the literature that North American patients still highly value the involvement of a senior clinician in their care.[3-5, 13, 31] Thus, despite the limitations of the literature, it appears that similarities may outweigh differences in patients' attitudes internationally. Comparison studies would be highly valuable in helping elucidate the extent to which cultural and training context factors are of importance to patients' responses, and the extent to which responses are intrinsic to human reactions to illness and the associated help-seeking behaviours.

Chapter 3: A number of potential limitations to the qualitative study are noteworthy. The foremost is that the researcher is an experienced GP and that his identity as a medical practitioner may well have affected the responses of the interviewees (social desirability bias) and his interpretation of the data. It does seem likely respondents would be inclined to frame their responses concerning their regular doctor more favourably in this context, and possibly also their responses concerning GPRs. Similarly, the researcher would find it difficult not to interpret the role of the GP in the patients' responses favourably. These shortcomings have been mitigated somewhat by a proportion of the interviews being undertaken by co-researchers, and the analyses being reviewed by the researcher's supervisors. However, where data were not forthcoming, even external review is not helpful. A case in point was the paucity of negative

comments regarding the ethnic origin of GPRs. There was significant mention made of the ability to communicate readily with GPRs, constituting a major theme of the findings. Respondents seemed at pains to emphasise it was not the ethnicity of the GPR, but the ability to communicate that mattered. Whether this was a socially acceptable framing of ethnicity-related concern by the respondents is not known; however it is likely that the identity of the researcher would make disclosure of any ethnicity-related concerns less likely. An additional limitation is that the time-lag between the respondent's consultation and their interview, whilst generally within 2 weeks, was up to 6 weeks. It is possible this reduced the respondents' recall of their consultation and affected their responses. Previous research into patients' attitudes to GPRs had demonstrated a reduction in reported trust in GPRs with increased time (i.e. more than 2 months) between consultation and the research interview.[31] It may be that specific favourable factors from the consultation became less prominent with time, and this may have affected the qualitative study's results.

As with any research which recruits volunteers (in this case requiring a postal response), it is possible that responders systematically display attitudes which differ from non-responders. This may include more positive or negative views, more extreme views, different educational or income status and the possibility of the reception staff preferentially targeting patients they felt would be more amenable to invitation. It should also be noted that response rates differed significantly between practices, and it is not known the extent to which this affected the sample, and hence the responses. It is also possible that respondents in the practices were not aware of the potential benefits of seeing GPRs, such as GPRs possibly having more up-to-date knowledge, affecting the spectrum of views being reported.

The author employed a template approach to analysis for this chapter, as described by Crabtree and Miller.[38] In this approach to thematic text analysis, codes are developed, either *a priori* or on analysis, and applied to themes in the text to organise the data. The codes are adapted, arranged and related to each other in a flexible manner in an iterative process as the analysis progresses,[38] differentiating this approach from content analysis, whilst still recognising *a priori* conceptualisations. Thus, in this project, the initial themes derived from the literature review were expanded and refined during analysis of the interview transcripts. This approach has particular strengths where themes from existing literature are to be explored and critiqued. However, this immediately poses a limitation to the method, in that the *a priori* conceptualisations will necessarily impact upon data collection and analysis,[39] which without due reflexivity on the part of the researcher will result in a superficial reiteration of previously held 'truths'. In defence of the use of this approach in achieving the aims of the research overall, it structured this qualitative study as a bridge between the loosely related existing literature and the planned cross-sectional studies. The findings from the qualitative study were central to the formulation of the survey instrument. It is interesting to note that a key finding from this project, arising from factor analysis of the cross-sectional surveys, was the role of vulnerability in influencing patients' preferences for their regular GP over a GPR. These findings were highly congruent with a later qualitative study of patients' responses to GPs and GPRs from Denmark.[29] This suggests our qualitative study assisted in providing a defensible conceptual basis for the later stages of the project.

Chapter 4: The regional cross-sectional survey of patients from 10 training practices functioned as a pilot of the survey instrument, the recruitment methods and analyses. A number of limitations in each of these areas were observed. First, the survey instrument

had several fields which were found to be either poorly conceived or unhelpful in the analyses. These included items for the day of the week on which the survey was completed, the country of origin of the respondent and an open response item regarding respondents' chronic medical conditions. The 'day of the week' was irrelevant; the number of countries of origin reported meant reported meant grouping was infeasible and analyses were unhelpful; and respondents' descriptions of their medical conditions defied reliable categorisation and were therefore not useful. These items were not reported and omitted from final survey. Second, the eligible practice response rate was quite high (77%); with 21 practices approached, eight being excluded by not having an active GPR, and only three declining. However, the individual patient response rate was 47% with a modest sample of N=233, resulting from patients not choosing, or not being able, to return the surveys. The recruitment method entailed reception staff offering 50 consecutive patients an envelope with the research materials for the patient to take home, and if agreeable, completing and returning to the university by mail. It is not known to what extent staff members complied with the 'consecutive' request, or whether they were selective in their invitations to patients. Attempts were made to ascertain this using billing software data to determine the number of visits from eligible patients for the recruitment period, but this proved unsuccessful. The recruitment method, requiring completed surveys to be mailed back to the university, may also have selected out particular respondents, perhaps more motivated, literate or mobile, from the cohort. Whilst assisting with ethical concerns regarding coercion of respondents, this method also rendered it infeasible to describe non-responders. It can only be speculated whether non-responders were more or less likely to view GPRs favourably. Despite the sample demographically resembling the national general practice profile, this consideration should be borne in mind when assessing the generalisability of the results.

Third, the analyses suffered from a relatively small sample size and hence the need to collapse some categories in order to undertake statistical testing. This reduced the information available for reporting as, for example, 5-point Likert response format items were used but analyses were undertaken on negative/neutral versus positive responses. In addition, regression analyses were undertaken using backward-step binary logistic regression, including rurality as an independent variable. Whilst this controlled for the effect of rurality on responses, it did not specifically account for the effect of intra-cluster (practice) response correlations. This may have resulted in a falsely inflated power for the sample. Whilst it has been noted that logistic regression is fairly robust in this situation,[40] more appropriate statistical methods were used in later phases of the research. Fourth, the survey sampled responses from both patients who had seen, and those who had not seen, a GPR. The survey was constructed semantically to deal with this and, where necessary, raised hypothetical questions dealing with attitudes or barriers to the prospect of consulting a GPR. Whilst 60% of respondents had seen GPRs, there was a large proportion of respondents who had not. Thus these were potentially uninformed views and this also needs bearing in mind.

Chapter 5: Chapter 5 described an exploratory factor analysis (Principal Component Analysis) of the data from Chapter 4, and hence suffers from the same limitations imposed by the sample size and recruitment methods previously noted. In addition to these limitations, decisions regarding steps taken in analyses require discussion. The first related to improving the interpretability of the results using rotation. Rotation 'maximises the loading of each variable on one of the extracted factors whilst minimising the loading on all other factors'.[41] A decision as to the type of rotation to use was based on whether it was felt that the factors may be related. Given the themes

derived from Chapter 3 (i.e. continuity, trust, communication, openness and access) in relation to the literature,[42-44] it was thought likely that at least some extracted factors would correlate; especially the continuity/trust/communication and openness/access groupings. Thus the 'direct oblimin' rotation was chosen rather than the more typical 'varimax' where factors were not expected to be related. This *a priori* decision seemed justified, but may have affected the final outcome of the analyses.

The second decision related to the number of factors to extract. Initial analyses based on selecting factors with Eigen values greater than 1 and examination of the scree plots extracted at least five factors. The results of these analyses were not readily interpretable into satisfactory constructs. An alternative method for determining the optimal number of factors was explored, and a decision was made to use Velicer's minimum average partial (MAP) test, which has good support in the literature.[45] Velicer's MAP test 'involves a complete principal components analysis followed by the examination of a series of matrices of partial correlations'.[45] MAP returned three as the optimal number of factors to extract, which resulted in significantly more interpretable results. However, it needs to be noted that the analyses would have yielded different results if typical extraction rules had been followed. It should also be noted that Factor 3 accounted for just 7.5% of the variance, and theoretically is likely to be closely related to Factor 1. Thus there may be limitations in the utility of the extraction of this factor.

A final consideration concerns the characterisation of the extracted factors. The conceptualisations relied heavily on the literature, particularly work by Hall,[46] Mechanic[47] and Bonds[31] regarding trust and Saultz[48] regarding continuity of care. As expressed in the chapter, agreed operationalisations of these constructs are still awaited and hence there may be disagreement concerning the researcher's use of terms. A case in point is the difference between 'longitudinal continuity', which Saultz defines as

referring to consistent care from a 'medical home', and 'interpersonal continuity' in which Saultz describes an ongoing trusting relationship between the patient and a personal physician.[48] Whilst it is very possible to have an ongoing but unsatisfactory relationship with a personal physician,[16] the author believes that the items extracted to the interpersonal continuity factor exhibited significant positive affective attributes, and were appropriately labelled.

Chapter 6: Chapter 6 reported on a large scale cross-sectional survey. The survey instrument was assessed as having favourable psychometric properties following the analyses in Chapter 5, with the unsatisfactory items being omitted. Despite the carefully planned random-cluster recruitment process, this study had a number of limitations. The initial intention was to invite practices from regional training providers (RTPs) in each of five states which had both metropolitan and rural training practices. Unfortunately, in one state (Victoria), there were administrative requirements for accessing metropolitan practices that were beyond the time resources of the project. Hence a rural-only RTP was selected in that state. Whilst the overall sample was 52% rural, the omission of metropolitan Victorians may have affected the results. Another limitation is the practice response rate of 51%. There was not a statistically significant difference between the proportions of rural/non-rural practices invited and those participating. However, data on other characteristics of non-responding practices were not collected, and it is not known to what extent non-responding practices had systematic differences from responding practices. The individual participant response rate was 48%. The same limitations applied to the recruitment processes within practices in this study as applied to those in Chapter 4. Therefore, it is not known in what ways the recruitment process preferentially selected patients and whether non-responding patients differed in views

from responding patients concerning GPRs. These considerations place limitations upon the generalisability of the results. It was positive that the adequate sample size permitted multinomial regression analyses. The use of the generalised estimating equations procedure allowed the calculation of population averaged parameter estimates to account for the cluster sampling process. GEE uses 'weighted combinations of observations to extract the appropriate amount of information from correlated data'[49] It was also positive to have a sufficient sample size to more robustly assess the responses of respondents who had seen a GPR regarding satisfaction with those consultations and ease of communication, and to be able to assess attitudes to chronic disease management for those with chronic diseases. It was also possible to conduct more robust analyses of factors associated with the frequency (or absence) of GPR visits.

Chapter 7: The exploratory factor analysis reported in Chapter 7 analysed data from the national cross-sectional survey. Therefore it also suffers from the limitations inherent in that dataset, as described previously. Similar analytical steps were taken as described in Chapter 5, with the concomitant limitations as previously discussed. Analyses were carried further in this larger dataset; some facets of these analyses require consideration. It was decided to create low and high categories for respondents' mean factor scores for analyses. The cut-point was chosen at a mean score of 4.0 from a total possible of 5.0. This cut-point was chosen as the factor scores were skewed with sample means of 3.5 (F1), 4.0 (F2) and 4.7 (F3) for the factors. Whilst the researcher considers this choice was justified by the data, it requires bearing in mind in interpretation of the results. Chapter 7 refers to two qualitative studies which have used behavioural theory frameworks, which also warrant explanation. The first framework used was adult attachment theory. 'Attachment relationships' are said to occur when 'an individual

seeks proximity to a safe or powerful person'.[50] The theory arising from this conceptualisation has been used in exploring facets of doctor-patient relationships, as vulnerability is a key driver of attachment relationships and vulnerability is inherent in illness.[29, 50] Whilst limited in helping understand reciprocal relationships, the theory does assist in understanding some aspects of patients' attitudes and behaviours towards doctors. The second behavioural theory noted was behavioural game theory. This theory refers to the manner in which humans (in the parlance of the theory 'players') in interactions make complex decisions regarding co-operation taking into account reputations, perceived trustworthiness and the context of the interaction dynamic.[51] This theory has been used in helping understand the development of trust over time in doctor-patient relationships and the effects of interpersonal continuity of care on trust.[51] Whilst the studies utilising these theoretical frameworks are cited as supporting facets of this project's conclusions, it needs to be borne in mind that such theories cannot be claimed as providing 'proofs' of the outcomes. However, the application of these theories, supported by research concerning patients' choices regarding interpersonal continuity of care,[52-54] strengthen considerations as to whether the findings may reflect attitudes to any unfamiliar health care provider, rather than specifically GPRs.

Future research

This project has contributed to an emerging evidence base to assist those involved in general practice training improve the interactions between older patients and GPRs in community-based training settings. A process of care has been proposed based on this evidence that appears promising in providing meaningful experience in chronic disease management for GPRs, whilst maintaining patient satisfaction and delivering high quality care. These recommendations, however, are limited by the cross-sectional nature of the research. At present, we have identified patients' intentions, albeit widely and

consistently recorded, rather than their observed actions or responses following implementation of the proposed recommendations. Thus, research is required to determine if such processes result in patient satisfaction with GPR chronic condition management; whether improved training outcomes result; the clinical impact of such interventions; and the impact on training practices.

Prospective trials are therefore required. An initial hurdle is the apparent poor communication between practices and patients regarding GP training. Any intervention trial would require communication with patients. Hence it is recommended that further research commence with identifying the barriers and facilitators of open communication with patients concerning GP training (utilising qualitative methods), followed by the development and trialling of educational and promotional materials and training resources for practices. A pilot trial of the proposed 'shared-continuity' model followed by a cluster-randomised controlled trial could then be undertaken, utilising the training resources in the intervention practices. A trial would most readily be able to assess outcomes (educational and clinical) in the management of a single chronic medical condition, for example Type 2 Diabetes. Outcomes compared with controls could include:

- GPR exposure to clinical cases, self-reported confidence in management of the clinical condition and outcomes of educational assessment

- Patient satisfaction, clinical outcomes for the chosen condition and overall patient outcomes e.g. all cause rates of acute hospitalisation

- Training practice evaluation of the process including supervisor satisfaction, educational benefits, resource usage, chronic disease management capacity and perception of patient responses

It must be considered, however, that funding for such randomised controlled trials might not be forthcoming. Quasi-experimental approaches, whilst possessing significant limitations, may be more achievable. A possibility includes pre-test and post-test measurements of outcomes between practices non-randomly assigned to an educational intervention or 'usual practice'.

Further exploration of patients' responses in other national health system contexts would be of value, as some of the attitudes expressed may be the result of acculturation in the Australian health system. Use of the OPAGPT scale outside of Australia has been encouraged by the researcher for this purpose.[11]

The proposed 'shared-continuity' process of care has implications beyond training practices, as the model is based on a personal clinical supervision role for GPs in chronic disease management. Further research is required to assess whether the principles may also be acceptable to patients outside training contexts, for example, when another doctor in the practice, a nurse or physician assistant is providing the care.

This research has illustrated that the factors of trust and interpersonal continuity have major significance in influencing patients' attitudes and responses to their health care.[11] Further research exploring these factors is required, to enable the ongoing development of responsive and relationship-centred general practice, in the context of an ageing population and an increasingly complex and fragmented health system.[55]

References:

1. Murphy AW. Opening Pandora's box: patients' attitudes towards trainees. Dublin General Practice Vocational Training Scheme Third Year Group 1991-1992. *Fam Pract.* Sep 1995;12(3):318-323.

2. Allen H, Bahrami J. Patients' attitude towards trainees. *J R Coll Gen Pract.* Nov 1981;31(232):680-682.

3. Reichgott MJ, Schwartz JS. Acceptance by private patients of resident involvement in their outpatient care. *J Med Educ.* Sep 1983;58(9):703-709.

4. Malcolm CE, Wong KK, Elwood-Martin R. Patients' perceptions and experiences of family medicine residents in the office. *Can Fam Physician.* Apr 2008;54(4):570-571, 571 e571-576.

5. Gerace T, Sangster J. Factors determining patients' satisfaction in a family practice residency teaching center. *J Med Educ.* Jun 1987;62(6):485-490.

6. Bonney A, Phillipson L, Reis S, Jones SC, Iverson D. Patients' attitudes to general practice registrars: a review of the literature. *Educ Prim Care.* Sep 2009;20(5):371-378.

7. Bonney A, Jones SC, Phillipson L, Iverson D. General practice registrars: attitudes of older patients. *Aust Fam Physician.* 2010;39(6):419-424.

8. Bonney AD, Jones SC, Iverson D. The older patient, the doctor and the trainee: patients' attitudes and implications for models of care. Wollongong: University of Wollongong; 2011.

9. Bonney A, Magee C, Caputi P. Measuring older patients' attitudes to general practice registrars: Exploratory factor analysis of a survey instrument. *Focus on Health Professional Education: A Multi-disciplinary Journal.* 2011;12(3):74-85.

10. Bonney A, Phillipson L, Jones SC, Iverson D. Older patients' attitudes to general practice registrars - A qualitative study. *Aust Fam Physician.* Nov 2009;38(11):927-931.

11. Bonney AD, Jones SC, Iverson D, Magee C. The Older Patients' Attitudes to General Practice Trainees (OPAGPT) Scale: Trust, continuity and implications. Wollongong: University of Wollongong; 2011.

12. Spike N, Britt H. The clinical activities of VMA Registrars in each stage of training. Final report to Victoria Metropolitan Alliance. Melbourne: Monash University; 2006.

13. Brown JB, Dickie I, Brown L, Biehn J. Long-term attendance at a family practice teaching unit. Qualitative study of patients' views. *Can Fam Physician.* May 1997;43:901-906.

14. Ruiz-Moral R, Perula de Torres LA, Jaramillo-Martin I. The effect of patients' met expectations on consultation outcomes. A study with family medicine residents. *J Gen Intern Med.* Jan 2007;22(1):86-91.

15. Fuglsang H, Olesgaard P, Pedersen NF, Olesen F. [Patients' attitudes towards and satisfaction with interns in general practice. Practicing interns and patient satisfaction]. *Ugeskr Laeger.* Oct 7 1996;158(41):5768-5772.

16. Frederiksen HB, Kragstrup J, Dehlholm-Lambertsen G. It's all about recognition! Qualitative study of the value of interpersonal continuity in general practice. *BMC Fam Pract.* 2009;10:47.

17. UN. World Population Ageing: 1950-2050. 2002; http://www.un.org/esa/population/publications/worldageing19502050/. Accessed 19.2.2011.

18. AIHW. Disability and ageing Australian population patterns and implications: Population ageing in Australia. 2000; http://www.aihw.gov.au/publications/dis/da/da-c02.pdf. Accessed 26th May 2010.

19. Carney TA. Clinical experience of a trainee in general practice. *J R Coll Gen Pract.* Jan 1979;29(198):40-44.

20. Britt H, Miller GC, Charles J, et al. *General practice activity in Australia 1999-00 to 2008-09: 10 year data tables. General practice series no. 26. Cat. no. GEP 26.* Canberra: AIHW;2009.

21. Britt H, Miller GC, Charles J, et al. *General practice activity in Australia, 2008-09. General practice series no. 25. Cat. no. GEP 25.* Canberra: AIHW;2009.

22. Cowles RA, Moyer CA, Sonnad SS, et al. Doctor-patient communication in surgery: attitudes and expectations of general surgery patients about the involvement and education of surgical residents. *J Am Coll Surg.* Jul 2001;193(1):73-80.

23. Crawford GH, Gutman A, Kantor J, James WD. Patients' attitudes toward resident participation in dermatology outpatient clinics. *J Am Acad Dermatol.* Oct 2005;53(4):710-712.

24. Santen SA, Hemphill RR, Prough EE, Perlowski AA. Do patients understand their physician's level of training? a survey of emergency department patients. *Acad Med.* Feb 2004;79(2):139-143.

25. Fahey M, Burnett M. What do patients attending an antenatal clinic know about the role of resident physicians? *J Obstet Gynaecol Can.* Feb 2010;32(2):160-164.

26. Woolliscroft JO, Howell JD, Patel BP, Swanson DB. Resident-patient interactions: the humanistic qualities of internal medicine residents assessed by patients, attending physicians, program supervisors, and nurses. *Acad Med.* Mar 1994;69(3):216-224.

27. McLeod PJ, Tamblyn R, Benaroya S, Snell L. Faculty ratings of resident humanism predict patient satisfaction ratings in ambulatory medical clinics. *J Gen Intern Med.* Jun 1994;9(6):321-326.

28. Fletcher KE, Wiest FC, Halasyamani L, et al. How do hospitalized patients feel about resident work hours, fatigue, and discontinuity of care? *J Gen Intern Med.* May 2008;23(5):623-628.

29. Frederiksen HB, Kragstrup J, Dehlholm-Lambertsen B. Attachment in the doctor-patient relationship in general practice: a qualitative study. *Scand J Prim Health Care.* Sep 2010;28(3):185-190.

30. Nakar S, Levi D, Rosenberg R, Vinker S. Patient attitudes to being treated by junior residents in the community. *Patient Education and Counseling.* 2010;78(1):111-116.

31. Bonds DE, Foley KL, Dugan E, Hall MA, Extrom P. An exploration of patients' trust in physicians in training. *J Health Care Poor Underserved.* May 2004;15(2):294-306.

32. Rodney WM, Quigley CB, Werblun MN, Sumbureru D, Shear CL. Satisfaction of continuity patients in a family medicine residency--validation of a measurement tool. *Fam Pract Res J.* Spring 1986;5(3):167-176.

33. Yancy WS, Jr., Macpherson DS, Hanusa BH, et al. Patient satisfaction in resident and attending ambulatory care clinics. *J Gen Intern Med.* Nov 2001;16(11):755-762.

34. Boutin-Foster C, Charlson ME. Problematic resident-patient relationships: the patient' s perspective. *J Gen Intern Med.* Nov 2001;16(11):750-754.

35. Sheets K, Caruthers B, Schwenk T. Patient satisfaction with gynecologic care provided by family practice resident physicians. *Fam Pract Res J.* Dec 1991;11(4):421-428.

36. Bradley NC. Expectations and experience of people who consult in training practice. *J R Coll Gen Pract.* Jul 1981;31(228):420-425.

37. Caballero Jauregui M, Salamanca Sanchez-Escalonilla MT, Saniger Herrera JM, Munoz Gonzalez F, Miguel Calvo I, Garcia Ledesma L. [Do our patients know what a family medicine resident is?]. *Aten Primaria.* Jan 2008;40(1):15-19.

38. Crabtree B, Miller W. Primary care research: a template approach to text analysis. In: Crabtree B, Miller W, eds. *Doing qualitative research*: Sage Publications; 1992:93-103.

39. Jaye C. Doing qualitative research in general practice: methodological utility and engagement. *Fam Pract.* Oct 2002;19(5):557-562.

40. Lemeshow S, Letenneur L, Dartigues JF, Lafont S, Orgogozo JM, Commenges D. Illustration of analysis taking into account complex survey considerations: the association between wine consumption and dementia in the PAQUID study. Personnes Ages Quid. *Am J Epidemiol.* Aug 1 1998;148(3):298-306.

41. Field A. Factor analysis using SPSS. *Discovering statistics using SPSS*. 2nd ed. London: Sage; 2005.

42. Baker R, Mainous AG, 3rd, Gray DP, Love MM. Exploration of the relationship between continuity, trust in regular doctors and patient satisfaction with consultations with family doctors. *Scand J Prim Health Care.* Mar 2003;21(1):27-32.

43. Bayliss EA, Edwards AE, Steiner JF, Main DS. Processes of care desired by elderly patients with multimorbidities. *Fam Pract.* Aug 2008;25(4):287-293.

44. Guthrie B, Wyke S. Personal continuity and access in UK general practice: a qualitative study of general practitioners' and patients' perceptions of when and how they matter. *BMC Fam Pract.* 2006;7:11.

45. O'Connor BP. SPSS and SAS programs for determining the number of components using parallel analysis and velicer's MAP test. *Behav Res Methods Instrum Comput.* Aug 2000;32(3):396-402.

46. Hall MA, Dugan E, Zheng B, Mishra AK. Trust in physicians and medical institutions: what is it, can it be measured, and does it matter? *Milbank Q.* 2001;79(4):613-639

47. Mechanic D. The functions and limitations of trust in the provision of medical care. *J Health Polit Policy Law.* Aug 1998;23(4):661-686.

48. Saultz JW. Defining and measuring interpersonal continuity of care. *Ann Fam Med.* Sep-Oct 2003;1(3):134-143.

49. Hanley JA, Negassa A, Edwardes MD, Forrester JE. Statistical analysis of correlated data using generalized estimating equations: an orientation. *Am J Epidemiol.* Feb 15 2003;157(4):364-375.

50. Salmon P, Young B. Dependence and caring in clinical communication: the relevance of attachment and other theories. *Patient Educ Couns.* Mar 2009;74(3):331-338.

51. Tarrant C, Dixon-Woods M, Colman AM, Stokes T. Continuity and trust in primary care: a qualitative study informed by game theory. *Ann Fam Med.* Sep-Oct 2010;8(5):440-446.

52. Turner D, Tarrant C, Windridge K, et al. Do patients value continuity of care in general practice? An investigation using stated preference discrete choice experiments. *J Health Serv Res Policy.* Jul 2007;12(3):132-137.

53. Rubin G, Bate A, George A, Shackley P, Hall N. Preferences for access to the GP: a discrete choice experiment. *Br J Gen Pract.* Oct 2006;56(531):743-748.

54. Gerard K, Salisbury C, Street D, Pope C, Baxter H. Is fast access to general practice all that should matter? A discrete choice experiment of patients' preferences. *J Health Serv Res Policy.* Apr 2008;13 Suppl 2:3-10.

55. NHHRC. A Healthier future for all Australians - final report of the National Health and Hospitals Reform Commission - June 2009. 2009; http://www.health.gov.au/internet/nhhrc/publishing.nsf/Content/nhhrc-report. Accessed 28.09.2010.